CONSEIL PERMANENT INTERNATIONAL POUR
L'EXPLORATION DE LA MER
CHARLOTTENLUND SLOT — DANEMARK

RAPPORTS
ET
PROCÈS-VERBAUX DES RÉUNIONS

VOLUME CXVII

1ÈRE PARTIE
PROCÈS-VERBAUX
(AOÛT — 1946)

2ÈME PARTIE
RAPPORT ADMINISTRATIF
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TRENTE-QUATRIÈME RÉUNION

STOCKHOLM — AOÛT 1946

BUREAU DU CONSEIL:

Président d'honneur:
M. Henry G. Maurice, C. B.

Président:
M. le Dr. Johan Hjort.

Premier Vice-Président:
M. A. T. A. Dobson.

Vice-Présidents:
M. Martin Knudsen.
M. K. A. Andersson.
M. Pierre Tissier.

DÉLÉGUÉS:

Belgique:
M. H. J. Koch;
Professeur à l'Université de Louvain;
Naamsche Straat 71, Leuven.
M. H. Devos;
Directeur Général de la Marine;
90, Rue de la Loi, Bruxelles.

Danemark:
M. le Dr. Martin Knudsen;
Membre de la Commission Danoise pour l'Exploration de la Mer; Consultant Hydrographique au Conseil;
Høeghsmindevej 58, Gentofte.
M. le Dr. H. Blegvad;
Directeur de la Station Biologique Danoise, Membre de la Commission Danoise pour l'Exploration de la Mer;
Charlottenlund Slot, Charlottenlund.

Espagne:
M. Rafael Garcia Rodriguez;
Contre-Amiral, Directeur de l'Institut Océanographique Espagnol;
Alcala 27, Madrid.
*M. Francisco de P. Navarro Martin;
Sous-Directeur de l'Institut Océanographique Espagnol, Chef du Departement de Biologie Marine;
Alcala 27, Madrid.

Éire:
M. G. P. Farran;
Chief Inspector of Fisheries;
3, Kildare Place, Dublin.
M. A. E. J. Went;
Inspector of Fisheries;
3, Kildare Place, Dublin.

Finlande:
M. le Dr. G. Granqvist;
l'Institut pour l'Exploration de la Mer;
Helsingfors, remplaçant
*M. le Professeur Erik Palmén;
Directeur de l'Institut pour l'Exploration de la Mer;
Helsingfors.
M. le Dr. T. H. Järvi;
Professeur, Directeur de l'Institut scientifique des Pêches;
Helsingfors.

France:
M. Pierre Tissier;
Conseiller d'État, Président du Conseil d'Administration de l'Office Scientifique et Technique des Pêches Maritimes;
59, Avenue Raymond-Poincaré, Paris.

*) Empêché d'assister à la réunion.

M. Jean le Gall;
Professeur-Agrégé de l'Université, Directeur de l'Office Scientifique et Technique des Pêches Maritimes;
59, Avenue Raymond-Poincaré, Paris.
M. Terrin;
Directeur des Pêches Maritimes à la Marine Marchande, *Paris.* (Suppléant).

Grande Bretagne:

M. A. T. A. Dobson, C.B., C.V.O., C.B.E.;
Fisheries Advisor, Ministry of Agriculture and Fisheries, St. Stephen's House;
Victoria Embankment, London S.W.
M. J. E. de Watteville, C. B. E.;
Under Secretary;
Scottish Home Department, Edinburgh, Scotland.

Islande:

M. Vilhjalmur Finsen;
Chargé d'Affaires de l'Islande à Stockholm;
M. Árni Friðriksson;
The University, Research Institute, Fisheries Department;
Reykjavik.

Norvège:

M. le Professeur, Dr. Johan Hjort;
Hofstad Gaard;
Hön Station per Oslo.

M. Johs. Sellaeg;
Département des Pêches;
Oslo.

Pays-Bas:

M. le Dr. D. J. van Dijk;
Chef de la Section des Pêcheries au Ministère de l'Agriculture, de la Pêche et de l'Approvisionnement;
Wassenaarscheweg 20, Le Hague.
M. le Dr. B. Havinga;
Directeur de l'Institut Royal pour l'Exploration de la Mer, Oost Indisch Huis;
Amsterdam.

Pologne:

*M. le Dr. Franciszek Lubecki;
Inspecteur Général des Pêches Maritimes;
Gdańsk-Sopot 4, Asnyka.
M. le Dr. Jozef Borowik;
Directeur de l'Institut Baltique;
Bydgoszcz, Ossolinskiech 4.

Suède:

M. le Dr. K. A. Andersson;
Bragevägen 4, Djursholm 2, Stockholm.
M. le Dr. Hans Pettersson;
Professeur, Institut d'Océanographie;
Stigbergstorget 8, Göteborg.

EXPERTS:

Outre les noms des personnes présentes à la réunion sont ajoutés les noms des membres de comité non présents.

Belgique:

Gilis, M. le Professeur Ch.; Ministère des Transports, Administration de la Marine, *Ostende.*

Danemark:

Erichsen, M. P. F.; Direction des Pêches, *Borgergade 16, Copenhague.*
*Grøntved, M. I. I.; Commission Danoise pour l'Exploration de la Mer, Section Planctonique, *Charlottenlund Slot.*
Jensen, M. le Dr. Aage J. C.; Commission Danoise pour l'Exploration de la Mer, *Charlottenlund Slot.*
Jespersen, M. le Dr. P.; Membre de la Commission Danoise pour l'Exploration de la Mer, Laboratoire Planctonique, *Charlottenlund Slot.*
Otterstrøm, M. C. V.; Station Biologique Danoise, *Frederiksdal pr. Lyngby.*
*Paulsen, M. le Dr. Ove; Commission Danoise pour l'Exploration de la Mer, *Charlottenlund Slot.*
Poulsen, M. le Dr. Erik M.; Station Biologique, Danoise, *Charlottenlund Slot.*
*Steemann Nielsen, M. le Dr. E.; Professeur à la Faculté de Pharmacie, *Universitetsparken 2, Copenhague.*
Tåning, M. le Dr. Å. V.; Laboratoire marine-biologique, Membre de la Commission Danoise pour l'Exploration de la Mer, *Charlottenlund Slot.*
Thomsen, M. Helge; Commission Danoise pour l'Exploration de la Mer, Section Hydrographique, *Charlottenlund Slot.*

Espagne:

*Jimeno Gil, M. le Prof. Emilio; Chef du Département de Chimie océanographique.
*Montequi Plaza, M. le Prof. Ricardo; Chef du Département de Chimie industrielle.
*Menendez Garcia, M. le Dr. Nicanor; Chef du Département de Physique océanographique.
*Benitez Inglott, M. le Contre-Amiral Wenceslao; Directeur de l'Observatoire Marine d'Astronomie.
*De Rotaeche y Rodriguez Llamas, M. le Contre-Amiral Jesus M^A; Conseiller technique de l'Institut Océanographique Espagnol.

*) Empêché d'assister à la réunion.

*Balen Garcia, M. le Commandant Fernando, Directeur de l'Institut Hydrographique Marine.
Cuesta Urcelay, M. le Dr. Juan; Directeur du Laboratoire à *Santander*.
*Bellon Uriarte, M. le Dr. Luis; Directeur du Laboratoire à *Malaga*.
*Massuti Alzamora, M. le Dr. Miguel; Directeur du Laboratoire à *Palma de Mallorca*.
*Lapique Suarez, M. le Capitaine Pedro; Secrétaire Général de l'Institut Océanographique Espagnol.

Finlande:

Buch, M. le Professeur Kurt; Institut pour l'Exploration de la Mer, *Helsingfors*.
Gripenberg, Mlle le Dr. Stina, *p. t.* Institut Océanographique, *Göteborg*.

France:

*Ancellin, M.; Sous-Directeur de Laboratoire à l'Office Scientique et Technique des Pêches Maritimes, *Boulogne s/M.*
Bernard, M. le Professeur F.; l'Université, *Alger*.
Desbrosses, M. P.; Inspecteur Général des Services de Biologie à l'Office des Pêches, *59, Avenue Raymond-Poincaré, Paris*.
*Drach, M. P.; Professeur de Biologie Générale à l'Université, *Paris*.
Fage, M. Louis; Membre de l'Institut, Professeur au Muséum d'Histoire Naturelle et à l'Institut Océanographique, *Paris*.
*Faure, M.; Sous-Directeur de Laboratoire à l'Office Scientifique et Technique des Pêches Maritimes, *59, Avenue Raymond-Poincaré, Paris*.
*Fleury, Mlle J.; Assistante chargée du laboratoire plancton, Secrétaire Scientifique de la Délégation Française.
Fontaine, M.; Professeur de Physiologie au Muséum National d'Histoire Naturelle, *Paris*.
*Francis-Boeuf, M. Cl.; Chargé de Recherches au Centre National de la Recherche Scientifique, *Paris*.
*Furnestin, M. le Dr. J.; Directeur du Laboratoire de l'Office des Pêches Maritimes, *Casablanca*.
*Letaconnoux, M.; Directeur de Laboratoire à l'Office Scientifique et Technique des Pêches Maritimes, *La Rochelle*.
Prenant, M. Marcel; Professeur à la Sorbonne, *Paris*.
*Rouch, M. le Cdt. I.; Professeur à l'Institut Océanographique, Directeur de l'Institut Océanographique de Monaco, *Paris*.
*Teissier, M. G.; Professeur de Zoologie à la Sorbonne, Directeur du Centre National de la Recherche Scientifique, *Paris*.
Vibert, M. R.; Inspecteur des Eaux et Forêts, Ministère de l'Agriculture, Service de Pêche et Pisciculture, *Oloron-Ste-Marie* (B. P.) *8, rue Adoue*, remplaçant

*Larrieu, M.; Conservateur des Eaux et Forêts au Ministère de l'Agriculture, Chef du Service de la Pêche et de la Pisciculture, *Paris*.
Dyèvre, M.; Directeur du Service Hydrographique de la Marine, accompagnera la Délégation Français en qualité d'observateur.

Grande Bretagne:

Carruthers, Dr. J. N., D.Sc., F. Inst. P.; Hydrographic Dept. (Oceanogr. Branch), Admiralty, *Oxgate Lane, Cricklewood, London NW. 2*.
Clark, Dr. R. S., M.A., D.Sc., F.R.S.E.; Scientific Superintendent, Marine Laboratory, *Aberdeen*.
Graham, Mr. Michael, O.B.E., M.A., F.L.S., Fisheries Laboratory, *Lowestoft*.
Harvey, Dr. H. W., F.R.S.; Citadel Hill, *Plymouth*.
Hodgson, Dr. W. C.; Fisheries Laboratory, *Lowestoft*.
Lumby, Mr. J. R.; Fisheries Laboratory, *Lowestoft*.
Macfarlane, Mr. P. R. C.; Scottish Home Department, *Edinburgh*.
Mackintosh, Dr. N. A., D.Sc., A.R.C.S.; Director of Research, "Discovery" Committee, Colonial Office, Queen Anne's Chambers, *Dean Farrar Street, London S.W.1*.
*Menzies, Mr. W. J. M., F.R.S.E.; Mount Stewart, *Colwyn Bay, Denbigshire*.
Pentelow, Mr. F. T. K.; Ministry of Agriculture and Fisheries, St. Stephen's House, *Victoria Embankment, London, S.W. 1*.
*Pryce-Tannatt, Mr. T. E.; St. Stephen's House, *Victoria Embankment, London, S.W.1*.
Russell, Dr. E. S., D.Sc., O.B.E., M.A.; St. Stephen's House, *Victoria Embankment, London, S.W.1*.
Russell, Dr. F. S., D.S.C., D.F.C., F.R.S.; Director of Marine Biological Association, *Citadel Hill, Plymouth*.
Tait, Dr. John B., D.Sc., Ph.D., F.R.S.E.; Marine Laboratory, *Aberdeen*.
Thompson, Professor Sir D'Arcy W., C.B., F.R.S.; The University, *St. Andrews, Scotland*.
Wimpenny, Mr. R. S., M.Sc.; Fisheries Laboratory, *Lowestoft*.
Wood, Dr. H., Ph.D., M.A.; Marine Laboratory, *Aberdeen*.
Wyatt, Rear-Admiral A.G.N., Hydrographer of the Navy, Admiralty, *London, N.W.2*.

Islande:

*Einarsson, Dr. Hermann; *Reykjavik*.
*Guðjohnsson, Dr. Þór; *Reykjavik*.
*Gudmundsson, Dr. Finnur; *Reykjavik*.
Jónsson, M. Jón; *Reykjavik*.

Norvège:

Bjerkan, M. Paul; Laboratoire du Directeur des Pêches; *Bergen*.
Braarud, M. le Dr. Trygve; *Blindern*.

*) Empêché d'assister à la réunion.

Brynjelsen, M. Ola; Directeur des Pêches, *Bergen.*
Dahl, M. le Professeur Knut; *Smestad.*
Dannevig, M. le Dr. A.; *Flødevigen.*
Devold, M. Finn; Laboratoire du Directeur des Pêches, *Bergen.*
Eggvin, M. le Dr. Jens; Laboratoire du Directeur des Pêches; *Bergen.*
Gerhardsen, M. G. M.;
Gran, M. le Professeur H. H.; *Slemdal.*
Lea, M. Einar; Laboratoire du Directeur des Pêches, *Bergen.*
Rasmussen, M. Birger; Laboratoire du Directeur des Pêches, *Bergen.*
Rollefsen, M. G.; Laboratoire du Directeur des Pêches, *Bergen.*
Ruud, M. le Prof., Dr. Johan T.; Laboratoire Biologique, l'Université, *Oslo.*
Sømme, Mr. Sven; Landbruksdepartementet, *Oslo.*
Theisen, M. Eilert; Laboratoire du Directeur des Pêches, *Bergen.*
Wiborg, M. Kr. Fr.; Laboratoire du Directeur des Pêches, *Bergen.*

Pays-Bas:

Keyser, M. H.; Directeur de l'Institut Royal Météorologique des Pays-Bas, *De Bilt.*

Pologne:

Bogucki, M. le Dr. M.; Directeur de la Station Marine, *Gdynia.*
Cieglewicz, M. le Dr. W.; *1, Aleja Zjednoczenia, Gdynia.*
Mańkowski, M. le Dr. W.; *1, Aleja Zjednoczenia, Gdynia.*
Żarnecki, M. le Dr. St.; l'Université, *Cracovie.*

Suède:

Alander, M. le Dr. Harald; Kgl. Lantbruksstyrelsen, *Stockholm.*
Hessle, M. le Dr. Chr.; Kgl. Lantbruksstyrelsen, *Stockholm.*
Höglund, M. le Dr. Hans; *Lysekil.*
Johnson, M. le Dr. N. G.; *Bornö, Gåseberg.*
Kullenberg, M. le Dr. B.; Institut Océanographique, *Stigbergstorget 8, Göteborg.*
Molander, M. le Dr. Arvid R.; *Lysekil.*
Nybelin, M. le Dr. Orvar; Intendant du Muséum d'Histoire Naturelle, *Göteborg.*
Rosén, M. le Dr. Nils; Intendant de Pêcheries, District de l'Ouest, *Göteborg.*
Zeilon, M. le Professeur N. O.; l'Université, *Lund.*

OBSERVATEURS:

Dr. J. R. Dymond, Royal Ontario Museum of Zoology, Queen's Park, *Bloor Street, Toronto, Ontario, Canada.*
Mr. Norman G. Swift, American Chargé d'Affaires, a.i., *Stockholm.*
Mr. Elmer Higgins; Chief, Division of Fishery of the Biology, Fish and Wildlife Service, U. S. Department of the Interior, *Washington, D.C., U.S.A.*

HÔTES:

M. le Dr. D. B. Finn; Directeur, Food and Agriculture Organization of the United Nations, Fisheries Division, *Washington, D.C., U.S.A.*
Mlle le Dr. Mary Sears; Woods Hole Oceanographic Institution, *Woods Hole, Massachusetts, U.S.A.*

PERSONNEL DU SECRÉTARIAT:

(Charlottenlund Slot, Charlottenlund, Danemark).

M. le Docteur H. Blegvad, Directeur de la Station Biologique Danoise, Secrétaire Général.
M. Jens Smed, mag. scient. et cand. mag., Hydrographe.
Mlle E. Brønniche, 1e Secrétaire.
Mlle le Dr. M. Rehder, 2e Secrétaire.
Mlle I. Hansted, Secrétaire des Statistiques.

AGENDA

for the thirty-fourth Meeting of the International Council for the Exploration of the Sea. Stockholm, August 12th—17th, 1946.

A. Opening Meeting of Delegates and Experts.

1. Welcome and Opening Address by the President.
2. Report as to present Participation.
3. Programme and Arrangements for the Conference, to be announced by the Swedish Delegate.
4. Statement by Mr. Dobson on the Results of the Overfishing Conference in London, 1946.
5. Statement by the President on the Problems of the Council.
6. Presentation of Administrative Report.
7. Presentation of Statement of Accounts for 1945/46.

B. Meeting of Delegates.

8. Opening of the Proceedings by the President.
9. Election of President for 1946/47.
10. Organisation of the Bureau.
11. Appointment of Bureau Members.

C. Final Council Meeting of Delegates and Experts.

12. Opening of Proceedings by the President.
13. Final Approval of the Accounts for 1938/39, 1939/40, 1940/41, 1941/42, 1942/43, 1943/44 and 1944/45.
14. Adoption of the Administrative Report.
15. Provisional Adoption of Statement of Accounts for 1945/46.
16. Consideration of Reports and Programmes of Committees.
17. Estimates for the Financial Year 1946/47.
18. Nomination of Finance Committee, Editors, etc.
19. Time and Place for the next Council Meeting.
20. Other Business.
21. Conclusion of the Meeting.

REPORT

of

the thirty-fourth Meeting of the Council.

First Sitting: Monday, August 12th, 1946, at 10 a. m.

In the presence of Minister GJÖRES, Minister ERLANDER, Statssekretär LANGE and Expeditionschef for the Ministry of Agriculture and Fisheries Mr. BOUVENG, the President, Professor JOHAN HJORT, took the chair.
Present: Members, Experts, Observers and Guests (*vide* list on pp. 6—9).

The President spoke as follows:

Ladies and Gentlemen!

I have the honour to inaugurate this the thirty-fourth meeting of the International Council for the Exploration of the Sea.

I appreciate more than I can say the privilege of opening and presiding over this meeting though circumstances have prevented me from taking my full share in the preparations for the conference.

First of all I beg to express the deep regret we all feel because an unexpected death has deprived the staff of the Council of its hydrographer, Dr. J. P. JACOBSEN, and I beg Professor MARTIN KNUDSEN, who has co-operated with him for so many years, to convey our sympathy to Dr. JACOBSEN's family. We also regret the loss of the two German scientists Dr. ERNST HENTSCHEL and Dr. STRODTMANN.

May I ask you to stand in silence for a moment in their memory?

After a moment's silence the President resumed as follows:

For us who have tried to contribute to the international study of the sea for nearly fifty years it is a great and happy experience once more to take part in a meeting in Stockholm. It reminds us of the early days, in the nineties, when Swedish, Danish and Norwegian scientists in a very modest way tried to solve the interesting problems of the currents which flow from the Baltic and the North Sea through the Skagerak, with all the different organisms, plants and animals, which are carried by and characterize these currents, and which by their variations determine the activities of the fishermen. We shall never forget the hospitality which was offered us in Göteborg, the heart of the Skagerak fishing industry, and we were extremely grateful to the Swedish Government when they took our modest work as deserving an expansion on a larger, an international, scale. The first international meeting was convened in Stockholm in the year 1899. For my part I have ever since been convinced that the initiative of the Swedish Government on this occasion was the result of the ever present belief of the Swedish people in the international ideal, the ideal which is built on the principle that all true ideas and facts belong to all humanity—not only to one nation. The Nobél-Institution is the best proof of this view.

This afternoon we shall have an opportunity of listening to lectures on the plans for a great new undertaking made possible by the generosity of far-sighted donors in Göteborg. The purpose of this is the study of the formation of the bottom of the sea. We hope that the Council at a later meeting will have the pleasure of being informed when the leaders of the expedition have prepared the results of this interesting undertaking.

I should like to express in the name of the Council our gratitude to the Swedish Government for their hospitality on this occasion and propose that we should send a message, by telegram, of our respectful duty to H.M. the King of Sweden, as well as to H.M. the King of Denmark, according to our custom, and to thank the following for their interest in attending this meeting, viz., the Swedish Minister, Mr.

GJÖRES, Minister ERLANDER, Statssekretär LANGE and Expeditionschef for the Ministry of Agriculture and Fisheries Mr. BOUVENG.

The Swedish Minister, Mr. GJÖRES, then rose and spoke as follows:

Mr. President!
Ladies and Gentlemen!

Permit me, in the first place, to express my sincere appreciation of the very kind words that you, Mr. President, were good enough to address to Sweden and the Swedish Government.

On behalf of the Swedish Government, allow me also to extend to you all a hearty welcome to our country. We are pleased and proud that the International Council for the Exploration of the Sea has accepted the invitation of the Swedish Government to hold its thirty-fourth meeting here in Sweden's capital.

Your sphere of investigation is of paramount importance for humanity, and Sweden has always been greatly interested in these researches and has tried, to the best of her ability, to contribute towards solving the problems involved. It is, as we know, the welfare of the fishing industry that constitutes the primary aim of your exploration.

The riches of the sea are vast and of the greatest consequence for the sustenance of mankind. Out at sea the fishermen of all our countries carry on their hard and often perilous work in order to bring in the products of the sea. And they deserve all the support that scientific research can give them.

It is naturally of extreme importance that the resources of the sea should be utilized in a rational way, and that overfishing should be prevented, as far as possible. For this purpose it is essential to increase our knowledge of the living conditions of the fish through scientific investigation. In this sphere your organization has, indeed, achieved great results. One evidence of this is provided by the Conference on Overfishing recently held in London, the results of which will, I hope, benefit the fishing industry in all the member countries.

The sea, as we know, is an international area, whose exploration is of extreme interest for all countries. This exploration can only be carried on through international co-operation, and no co-operation should be better calculated to bring the nations together in concerted, peaceful work.

I hope that the coming deliberations, discussions and addresses will lead to good results. I also hope that you will all spend an enjoyable week in Stockholm.

The Minister and his Suite then left the meeting and the President resumed as follows:

I welcome in your name several Delegates who are attending the Council Meeting for the first time: first of all our new colleague in the Bureau, M. PIERRE TISSIER, who was prevented from taking part in the Council Meeting last year, Dr. KOCH from Belgium, Mr. WENT from Éire, Mr. FINSEN from Iceland, Mr. VAN DIJK from the Netherlands, Mr. SELLAEG from Norway and the new Delegate from Spain: Contre Admiral GARCIA RODRIGUEZ. You have before you a list of members present, which includes several new experts—and we bid them all welcome as co-operators in our future work.

Inside this list you will find a list of corrections, some more alterations have come in too late to have them duplicated, the most regrettable change is that we shall miss many of our French colleagues, as the research ship "Président Théodore Tissier" is not coming.

I know that all members present will appreciate that I especially welcome our Honorary President Mr. HENRY MAURICE.

When Mr. MAURICE left his position as President of the Council, Président THÉODORE TISSIER declared: "Je voudrais que le Président MAURICE ne devienne jamais un étranger au Conseil et au nom des Vice-présidents je demande au Conseil International de nommer M. MAURICE Président d'Honneur avec entrée à toutes les séances du Conseil, du Bureau et des Comités".

War has separated Mr. MAURICE from us, but he has never been "un étranger au Conseil."

I am glad to see the senior of our members, Sir D'ARCY THOMPSON, it is a great pleasure to all of us to see him here.

At the meeting in October last year the Council resolved to ask the Danish Foreign Office to invite the United States, Canada, Newfoundland and Russia to take a full share in our work. We regret very much that up to the present the urgency of so many diplomatic matters has prevented final decision being reached in this matter. Later in this meeting I hope to make it clear that the invitation to these countries was not made with the idea of enlarging the Council, but rested on the belief that the interests of the countries at present participating as well as those other countries will be best served by the sharing of the investigations of problems common to all. We are, therefore, very glad to welcome the observers from Canada, Dr. DYMOND, and from the United States: Mr. ELMER HIGGINS and Mr. NORMAN G. SWIFT from the United State's Legation.

The interest taken in the Council's work by the new international organisations manifests itself in the attendance by a representative from the FAO: Dr. D. B. FINN.

Of the countries which formerly took part in the Council's work but have lately been prevented by circumstances from sending delegates we are glad to welcome members from Poland and Spain, but regret the absence of representatives of Russia and Portugal.

I beg to announce that points 6 and 7 of the Agenda will be dealt with now by the General Secretary, Dr. BLEGVAD, who will give you information of the Statement of Accounts and the Administrative Report

Point 6 and 7 of the Agenda. Presentation of Administrative Report and Statement of Accounts for 1945—46.

Dr. BLEGVAD spoke as follows:

You have before you on the table an Administrative Report consisting of such reports of Committees which we have received and succeeded in getting printed, as well as a duplicated Report from the Office. As you will see much valuable information is lacking and I hope to receive more material for this Report. You will have an opportunity to comment upon the Administrative Report at the final Council Meeting.

The Statement of Accounts for 1945/46 is included in the Administrative Report of the Office which is laid on the table. This Statement has been approved by the Auditors and an opportunity will be given for comments at the final Council Meeting.

Among the papers laid before you you will find Vol. 2 of the *Annales Biologiques*—in proof-print only. We have had so many difficulties in getting this publication ready for the Council Meeting that we have not even succeeded in getting a proper title page.

Under **Point 3 of the Agenda, Programme and Arrangements for the Conference,** the Swedish senior Delegate, Dr. K. A. ANDERSSON spoke as follows:

Gentlemen,

I should like to give you some information about the arrangements that have been made for members during their stay in Stockholm this week.

The programme of meetings for the Council and the different Committees has been drawn up by the General Secretary and has been distributed to all who are attending this Meeting. I hope that it will not be necessary to make any alterations in this programme.

With regard to the programme, I should like to draw your attention to the fact that the first meeting of the Hydrographical Committee takes place at 2.30 p. m. to-day. At this, short addresses will be made on the Swedish Expedition which, under the leadership of Professor HANS PETTERSSON, went this summer to the Mediterranean and the Atlantic. The speakers will be Professor PETTERSSON and Drs. KULLENBERG and NYBELIN. All delegates and experts are invited to attend.

As regards your more material well-being, I have to inform you that you and your ladies are all the guests of the Swedish Government at lunch on Monday to Friday both inclusive at the Grand Hotel at 1 p. m. It will be seen from the programme that the afternoon meetings begin at 2.30 p. m. Lunch should therefore be finished by 2.15 p. m.

Further, a dinner will be given by the Swedish Government at the Grand Hotel on Wednesday at 6.30 p. m.

We have a week of hard work before us, but I hope nevertheless that there will be time for a little recreation too, and that you will all have a most enjoyable week in Stockholm.

Under **Point 4 of the Agenda, Statement by Mr. Dobson on the Results of the Overfishing Conference in London, 1946,**

Mr. DOBSON spoke as follows:

I understand that it is your wish that I should afford the meeting some account of the Overfishing Conference convened by His Britannic Majesty's Government in London earlier in the year to discuss the question of Overfishing, and of the conclusions reached at that Conference.

It is necessary, however, that those present should in the first instance be quite clear as to the steps which led up to the holding of that conference on which I had the honour of presiding and at which you, Mr. President, and the Vice-president, Dr. ANDERSSON and Dr. BLEGVAD were present to represent this Council as observers, and at which others of those present to-day like the Vice-President TISSIER were also present as representatives of their countries.

Early in the war the British Ministers responsible for fisheries were reminded that after the 1914-1918 war there was a wild scramble on the part of the fishing industries of all the countries concerned to fish the North Sea which had been closed to fishing during those years. For a few years prolific catches were the order of the day, then catches began to drop and fishing became unremunerative, in fact the inevitable result of overfishing followed. In their desire to prevent a recurrence of such disastrous results after the 1939 war, the Ministers concerned sat up a Committee composed of exceptionally well qualified scientists to examine the whole position and to make recommendations. The Committee consisted of Dr. E. S. RUSSELL (Chairman), Dr. R. S. CLARK, Professor RITCHIE and the late Dr. KEMP.

Their report, presented at the end of 1941, made it clear that, in the view of the Committee, while it was desirable and indeed essential to increase the mesh measurements and the size limits of fish prescribed under the London Convention of 1937, such regulations would not by itself solve the overfishing problem. The Committee therefore proposed a reduction in the global tonnage of the fishing fleets of the different countries concerned, such restriction not being intended to apply to vessels below a certain unspecified size.

This report was never published, but His Britannic Majesty's Government decided to convene the International Overfishing Conference to which I have already alluded, which met in London from 25th March 1946 to 5th April 1946, and their conclusions are set out in a White Paper of which I have laid round on the table a few copies for the perusal of the delegates present.

Dr. RUSSELL was asked to prepare a digest of the Committee's Report and this was circulated to the countries concerned with the invitation to that Conference, the North Sea being mentioned as the

area where the most urgent problems arose, but other fishing areas being mentioned adjacent to the British isles elsewhere where regulating action might have to be taken as necessity arose.

The proposals of the Russell Committee formed the basis of the case submitted to the Conference on behalf of the British Government, but a number of other proposals were adumbrated by the delegations of the countries (as in para 7 White Paper)[1]).

All those remedies were remitted to the consideration of two Committees constituted for the purpose, under the chairmanship of Mr. DE WATTEVILLE and Dr. R. S. CLARK and, as a result, the Conference decided to recommend that the minimum mesh measurements of 70 and 105 mm. prescribed by the 1937 Conference should be raised to 80 and 110 mm. respectively, while the size limits below which certain fish should not be taken should be, as set out on p. 4 of the White Paper. The Norwegian, Swedish, Danish and Icelandic representatives were of opinion that all or some of the limits agreed were too low.

These limits were set out in a draft Convention which is set out in an Appendix to the Final Act (p. 7 of the White Paper). This Convention has already been ratified by the British Government.

Beyond this draft Convention the Conference did not find itself able to proceed. In fact it did not accept any of the other remedies which were placed before it and to which I have already briefly referred.

Nevertheless, as will be seen from para 12 of the Final Act, the Conference recognized the necessity for some international control of fishing. It felt, however, that a general reduction of the fishing fleets or a reduction of catches based on 1938 might not take sufficient account of the circumstances of certain countries.

The Conference therefore recommended, subject to the reservations set out in para 12 (4) of the Final Act, the appointment of a Standing Advisory Committee to study and within a year to make proposals as to the suitable forms of regulation for the prevention of overfishing.

The duty of convening this conference was placed upon the British Government, and although it is not possible to state precisely at this moment when the Conference will take place I am able to say that the first steps were taken some weeks ago to prepare for its being held and each country concerned has been asked to notify the name of its Delegate and if desired its Expert.

That concludes, Mr. President, the summary of information which I desire to lay before the meeting.

It remains for me to add that while the British Government—and I may add, I think, some of the other Governments represented at the Conference—were disappointed that it was not possible to achieve agreement with regard to some form of regulation beyond that visualized in the draft Convention, nevertheless the establishment of the Standing Advisory Committee should enable the various expedients to be considered in greater detail than at a Conference attended by many delegates, and it is devotedly hoped that some material agreement may result from the meetings of this Committee. At all events facilities have been provided to enable the interested parties to get round the table and discuss a problem of vital importance to the future prosperity of their fishing industries, and indeed, I submit, to the food supply of the world.

In reply to this the President spoke as follows:

I think all members of the Council will be at one with me in wishing to extend to Mr. DOBSON our most cordial thanks, first for the splendid way in which he conducted the London meeting in April, next for the beautifully prepared documents (the Final Act and the Convention) which were the result of that meeting, and finally for the clear review which he has given us of the situation to-day.

We have every reason also to be grateful to British fishery scientists for the enormous labours they have exerted to clarify by means of statistics the varying relations between the people engaged in fishing and those organisms which inhabit the sea and which to-day, perhaps more than ever before, are of the utmost importance as human food. Their report put me strongly in mind of the Darwinian "struggle for existence" between populations of beasts of prey and animals of food. We who ever since our youth have admired DARWIN's idea of the inter-relationship between such mutually warring populations, will see in the present-day British science of fishery a continuation of the ideas of their great countryman.

It was also a great pleasure to us who attended the London meeting as observers on behalf of this International Council to see in the representatives of all countries an intense will to rationalize the activities of the fishing population. As STANLEY CASSON said in an interesting lecture held in February 1939 at the Royal Institution in London, it is a clear sign of a country's civilization when it protects the organisms that are of great importance to it in their early days, allowing them to grow beyond their maximum period of growth to sizes of the greatest importance to man, also in respect of quality. The increase in the size of meshes and the maximum sizes of young fish were encouraging advances, and there was a growing desire to go still further in the same direction. It was a great pleasure to me also to learn of the decision of the British industry to recognize the resolutions of the London meeting, and I assume that this International Council will continue its efforts in this direction.

During the discussions in London and in the scientific reports that were submitted then there were nevertheless some views that, at present at any rate, are scarcely practicable as a basis for an inter-

[1]) The other proposals as set out in the White Paper included a limit on the number of days fishing, the closure of certain areas for considerable periods and the institution of close seasons for certain kinds of fish.

national regulation of the activities of the fishing population. For their object is a future constant size of this population in conjunction with a similarly constant population of organisms in the sea, an ideal state of affairs that has been called "the optimum catch".

I was very interested to see in the excellent review of these opinions to be found in Dr. E. S. RUSSELL's little book, "The Overfishing Problem", published in 1942, a statement which corresponds almost word for word to what CHARLES DARWIN said of his own work after its conclusion. RUSSELL says of the distinguished British statistical examinations of the relationship between the fishermen and the animal stock in the sea (page 84): "We make the big assumption of course that environmental conditions remain constant, that there is, for instance, the same average annual production of food".

On this point the statistical method and its comparison between the mutual struggle and interrelationship between the populations differs from the methods and ideas which led to the establishment of this International Council 50 years ago. Few of us, probably, have been fully conscious of the fact that the ideas which formed the basis of our work were in the closest accord with the ideas of LAMARCK, one of the first principles of which was that the life of all organisms could be understood only when seen in conjunction with their environment (their "milieu externe"). Nowhere can these ideas have such clear results as in the study of the living organisms in their connection with and dependence on the physical and chemical factors in the waters where they live. As H. H. GRAN wrote in his report on the study of plankton on the Michael Sars expedition in 1910: "It has often been observed, not only by Cleve and Hensen, but also during the "Challenger" and "Valdivia" expeditions, that the plankton changes its character the moment one passes the boundary between two currents." It was on the basis of this idea that the men who founded this organization built up the work on what they called a co-operation between biological and hydrographical investigations.

In recognition of the close ideal association between this basis of our work and the ideas first put forward by LAMARCK, I should like to ask the meeting to join in requesting the French representatives to convey our greetings to the institutions which celebrated a few months ago the 200th anniversary of the birth of LAMARCK and our regret that we could not take part in this celebration.

I make so bold as to assert that those who take as their point of departure the philosophy of LAMARCK and ADAM SMITH's almost contemporaneous "Wealth of Nations" must place the greatest emphasis on investigations as to whether and to what extent the environmental conditions in the sea deviate from the idea that conditions everywhere are constant. Both in the organisms in the sea and in the lives of men they will be forced to bear in mind the words of ADAM SMITH: "The demand for men (fishermen) like that for any other commodity necessarily regulates the production of men, quickens it when it goes too slowly and stops it when it advances too fast". They will make it clear why and in what measure both the individual and its community must face up to and adapt itself to changing functions of life, or, as we have called it, fluctuations, both in the conditions of life and in their effects on the living organisms. I should like in a few words to recall to mind the rich experiences of this Council with regard to these fluctuations.

In my first study of the North Norwegian fisheries I also tried to work out a statistical comparison between the fish stock (catches of cod) and the fluctuations in the fishing population during the period 1868—1900. Fluctuations proved to be enormous for both populations, though I was unable to detect any clear causal connection between the fluctuations of the two groups. I therefore drew the conclusion that there must be other causes besides the fishery to create the variations in the catch. These variations were subsequently discovered and clarified. The most important of them were:

a. Above all, the variations in the sea in which the cod lived. The Danish Meteorological Institute has given excellent and important surveys of the varying limits of the polar ice from year to year and season to season. I myself, in 1900, experienced the greatest movement of the ice limit from Novaya Zemlya across the Murman coast towards Norway. With my Russian friend KNIPOWITSCH I studied this advance of ice, seals, birds, and fish. Knowing from the fishery reports of OSSIAN SARS that there used to be large Norwegian cod fisheries near Spitsbergen in the eighties, though these no longer existed, I undertook an expedition there in 1900. Between icebergs I succeeded in carrying out some trawling, which proved that the entire boreal fish fauna (cod, ling, flounders) had gone. There were only arctic fish and crustacea. But 20 years later British and German trawlers made their biggest catches west of Spitsbergen and Bear Island, and in certain years it was possible to circumnavigate the whole of Spitsbergen in ice-free water. The size of the sea itself, that is to say, the sea populated by the fish stock, therefore fluctuates. This is a factor of the utmost importance to the trawler fleets of all countries on the North Sea. Their fishing sea is not constant.

The same discovery was made by ADOLF JENSEN, PAUL HANSEN, and VEDEL TÅNING in the sea off the west coast of Greenland, where in 1924 I also saw the new and rich stock of fish.

b. But it is not the size of the sea alone which changes. There are also great migrations of the fish to the spawning areas and even brief physical and chemical fluctuations in the living conditions of the plankton, the first food of the newly hatched fish spawn, can cause fluctuations in the size of the fish stock by fluctuations in the wealth of individuals of the various year-classes. I beg to refer to some examples from my co-operation with Mr. LEA. And

it is of the utmost interest that these fluctuations also are characteristic where the conditions of life are the same. During an expedition to Canada and Newfoundland at the invitation of the Canadian Government I found similar fluctuations in the growth conditions of the herring races and even in the same year-class as had been so rich off the Norwegian coast, the 1904 class. If we look at a chart of the distribution of the temperatures in the depth of 100 metres we observe the similarity of the situation at those parts of the Sea, the area north of Norway, the area off Newfoundland, Canada and New England where the distribution of the fauna has so many corresponding points. This is an argument for an extension of this Council.

c. Of no less importance to an understanding of the attitude of the various countries to the problem of regulating the fisheries is the fact that not only the fish stock but also the fishing population must adapt itself to the conditions. There are fisheries where a small motor cutter, manned by one or two men, is the most rational form of operation, and which must therefore win in competition with other methods. In all Scandinavian fisheries there are many different types of motor cutters. From this extreme to the great steam trawlers which take 10 days out and 10 days back from the North Sea ports to the Norwegian Sea there is a multitude of types; each in its way is the most capable of success and cannot, therefore, be fitted into statistical calculations of averages, because statistics pay no attention to the interaction which everywhere takes place between life and environment, as LAMARCK called it. In his admirable "discours d'ouverture" LAMARCK said: "J'ai longtemps pensé qu'il y avait des espèces (et des états) constantes dans la nature et quelles étaient constituées par les individus qui appartiennent à chacune d'elles. Maintenant je suis convaincu que j'étais dans l'erreur à cet égard, et qu'il n'y a réellement dans la nature que des individus . . . . . Dans les relations qui existent, soit entre les individus, soit entre les diverses sociétés que forment ces individus, soit entre les peuples et leurs gouvernements, la concordance entre les intérêts réciproques est le principe du bien comme la discordance entre ces mêmes est celui du mal".

The agreement between national interests is what we call the international idea which never can have the purpose of blotting out the disagreements by force. It demands a plan which can see "la concordance entre les intérêts réciproques". LAMARCKS contemporary BEETHOVEN expressed the idea in these beautiful words: "Kraft nicht Macht". Kraft means an example worthy of imitation. We may call that a social experiment. In this hour the nations' battle rages around ideas of the question: what is a social experiment? Instead of selecting one special part or element of human activities for experimental research, social reformers demand the right to experiment with society as a whole. In so doing they ignore the truth that no experiment that aims at changing an infinite number of factors at the same time will ever succeed. Thus the ideals become social "isms", which always end in a resort to force in place of experimental success or social service. The remedies once more prove to be "worse than the disease". A real social experiment always starts from a new sphere of work or a new method of work. Nevertheless through their modest fishing experiments members of this Council have in any case given the fisheries greater values than all what the Governments have contributed to the expenses of the Council and to its members' investigations at sea.

At the London Conference the convention contained all the regulations to which all countries could agree, as for instance the mesh regulations, but there were disagreements between the present interests of the different nations.

The international co-operation cannot oppose the desire of improvement of its different members. Its purpose must be through inventions and experiments to enlarge the field of interests common to all.

Have we now reached the limit of all change, that which we used to call progress? If so, it would be the first time in the fishing industry. Whoever sees barriers to expand before him enjoys the advantage of knowing that nobody can foretell the future, either in the life of the living organisms or of the industry. It is a bold undertaking therefore, even to suggest new future possibilities. It can only be done in the form of proposals for new investigations, and this more than anything else is the object of the International Council. A glance at the map of the northern part of what we call the Norwegian Sea will remind us that we have hitherto only believed that the stock of fish was associated with the banks in the North Sea and off the coast of Northern Norway. But is there no pelagic matter to find in the great waters over the 2000 metre deep Norwegian Sea? In my numerous conversations with the old bottlenose catchers in the Northern Norway they gave me with the utmost liberality all the facts they knew about the appearance of the bottlenose at various times of the year. I published this information in the form of a chart, which shows that the bottlenose, *Hyperoodon diodon*, is caught at various seasons, mostly in spring (May-June), over the greatest ocean depths. And this whale came to the surface replete with squid (*Ommatostrephes todarus*) or herring. Thanks to the experiments of OSCAR SUND with the echo plumb we have now seen how pelagic fish shoals can be "plumbed" over the greatest ocean depths, and the fishermen now buy and apply this plumb for their work. And later still more fantastic instruments, such as the asdic have been invented and can perhaps solve the problems of 45 years ago, when we were finding only a few traces in small catches of cod, herring, *Sebastes norvegicus*, over the great ocean depths. But all this belongs to the future. Nobody can either maintain or deny its possibilities. Mr. LEA will report on these ideas in the herring meeting.

Of all that I have tried to call to mind so far it can be said that essentially it concerns the attempt

by man to take, to find, to gather what Nature has produced. In his interesting lecture on the decline of ancient civilizations (February 1939) STANLEY CASSON said that civilization only begins when man starts to produce himself, by keeping domestic animals or by settling in permanent habitations. Can this happen in the work at sea? The first attempt at "planting out" young fish (small plaice) was due to the Danish scientist C. G. JOH. PETERSEN, and his idea was developed with great success by Dr. BLEGVAD in Denmark and Dr. ANDERSSON in Sweden. For several decennia men have endeavoured to make use of the milliards of eggs produced by the most important species of fish which are lost every year. The discovery of the fluctuation of the year-classes supports this problem. It proved that the sea is richer than we once believed. Technical knowledge has not yet succeeded in carrying the development so far that the small larvae have survived the first critical period, and still less to the point where the larvae produced could be planted out, recovered and recognized. In other words, that the value of such an experiment might be measured! But these problems also are, or seem to be, at a new stage, for in a special small form of crustacea (*Artemia*) a means has been found by Mr. ROLLEFSEN of surmounting the first dangerous stages. But despite all optimism it is clear that international science here stands only at the very beginning of the way leading to the fantastic objective of cultivating the species of fish which it is argued are on the point of limiting the possibilities of the fishing population to gain a living. Whatever we dare to hope or understand here, it is clear that nobody dare call this anything more than a future problem of international co-operation. But it may also serve as a warning against the pessimism which fears that all possible roads in the future are closed.

I beg that the problems here indicated may be discussed in the different committees of the Council which all, I hope, may be interested in their different aspects.

The meeting adjourned at 11.40 a. m.

Second Sitting: Monday, August 12th, 1946, at 11.50 a. m.

The President, Dr. HJORT, in the Chair.

Present: The Members of the Council and Observers.

The President opened the meeting and welcomed the observers who attended this meeting without, however, a right to vote.

The President then called on Mr. DOBSON.

Mr. DOBSON said: Mr. President, I am sure that all present would wish me in the first instance on their behalf to say how glad we all are to see you here after your illness to preside over this meeting of the Council. On behalf of all I express the hope that you will soon make a complete recovery.

Gentlemen, on behalf of the British Delegation I submit to this meeting that Professor HJORT be invited to act as our President for the coming year. (Carried with acclamation).

Prof. HJORT said: I thank you very much for this renewal of your confidence in me. I have been in doubt whether I should accept to take over the presidency once more. When my friend Mr. MAURICE in 1938 asked me to be his successor as President, the main purpose was to carry this institution through the coming war which we clearly saw would come. This task was successfully achieved but we were for a long time cut off from several of the members of the Council, I sought, therefore, a closer collaboration with those countries with which we could make contact. Professor KNUDSEN, Dr. K. A. ANDERSSON and Dr. BLEGVAD have assisted me greatly in my efforts to keep the Council in being.—When we met last year and decided to ask Canada, Newfoundland, U. S. A. and U. S. S. R. to join the Council I had the hope that it would have been possible to arrange the adherence of these countries prior to this meeting, and it was my intention to resign; this being not the case, however, and hoping that these countries will join the Council in the course of the coming year I shall be prepared to take over again the Presidentship for one year more, but when accepting this I ask the Delegates to re-elect the Vice-Presidents and to nominate Mr. DOBSON first Vice-President with an honorarium of 3,000 Kr. a year in order that he may assist me especially in financial matters.

No one having any remarks to offer the President declared the Bureau duly re-elected as a whole and the special proposal regarding Mr. DOBSON adopted. Applause.

Mr. DOBSON said: May I take this opportunity of informing the Delegates that I have ceased now to be Fisheries Secretary, but I remain as Fisheries Advisor to my Department. This will give me a certain amount of leisure which makes it possible for me better to assist the President. I thank you for the honorarium granted, but I should certainly have been ready to assist the President without such honorarium.

The meeting terminated at noon.

Third Sitting: August 17th, 1946, at 4.30 p. m.

The President, Dr. HJORT, in the Chair.
Present: Members, Experts, Observers and Guests.

The President opened the Meeting and stated that in accordance with the decision of the first sitting of the Council the following telegrams had been sent to Their Majesties the Kings of Sweden and of Denmark:

> "Les membres du Conseil International pour l'Exploration de la Mer réunis à Stockholm demandent la permission de témoigner à Votre Majesté leurs sentiments les plus respectueux"

in reply to which the two following telegrams had been received:

> "J'exprime mes remerciements sincères avec tous mes bons voeux pour la conférence.
> GUSTAF"

and

> "Mes remerciements sincères et compliments.
> CHRISTIAN R."

Point 13 of the Agenda. Final Approval of the Accounts for 1939—1945.

The Accounts for all the war years, already audited by the qualified accountants and now revised by the Finance Committee, were finally approved.

Point 14 of the Agenda. Adoption of the Administrative Report.

No observations having been received as to the Administrative Report circulated at the first sitting of the Council, it was adopted without amendments.

Point 15 of the Agenda. Provisional Adoption of Statement of Accounts for 1945/46.

These accounts having already been audited by the auditors, but not yet passed by the Finance Committee, were provisionally accepted, final approval being postponed until next year.

Point 16 of the Agenda. Consideration of Reports and Programmes of Committees.

The President referred to the duplicated copies of all reports and recommendations of the committees, which were placed on the table.

The reports of Area Committees and other Committees had all been considered by the Consultative Committee and the Bureau, and the President drew attention to a few points only, adding that with regard to such recommendations as involved expenditure the first Vice-President, Mr. DOBSON, would later in this meeting draw special attention to such when treating item 17 of the Agenda—Estimates for the Financial Year 1946/47.

The President then spoke as follows:

The adoption of the recommendations of the Consultative Committee carries with it the recommendations of all other Committees, and I need only point to the recommendation by the Consultative Committee itself in respect of Scientific Meetings during the Council Meeting next year. Two subjects are proposed: (1) "The Effect of the War on the Stocks of Commercial Food Fishes", to be convened by Dr. R. S. CLARK, and (2) "The Rearing of Fish" to be convened by Mr. ROLLEFSEN. Two whole days are suggested for these meetings and it is proposed to start them on the Sunday before the opening meeting of the Council.

In Recommendation No. 5 of the Consultative Committee, attention is called to the proposal of the Atlantic Slope Committee that its area should be extended to include the waters from St. Kilda to the Equator.

As you know, the Council set up several years ago, a Sub-Committee for consideration of a closure of Faxa Bay to trawling. This Committee has now finished its work, and its recommendations are before you. In Recommendation A 2 the Bureau, however, has made an alteration in view of the difficulty of supporting a recommendation that compensation should be made to the fisheries. The Bureau is of opinion that the Council can consider the recommendations from a scientific point of view only, and that the question of compensation is a delicate and political one. It is therefore proposed to the Council to accept the recommendation as amended, i. e., as follows:

> "In the area every kind of trawling or seine netting should be prohibited in which case international policing at maximum efficiency is essential to the experiment",

where "in which case" is put instead of the words "Compensation should be made to the fisheries and".

The Bureau proposed that the Council sends the recommendations from the Faxa Bay Sub-Committee as amended to the Icelandic Government through the Danish Foreign Office.

Dr. TÅNING pointed out that the Sub-Committee had laid stress on the recommendation on compensation to the fisheries because it was rather difficult for the trawling industry to comply with this experimental closure of the Faxa Bay. The Sub-Committee had therefore proposed that the question of some compensation should be specifically mentioned, and he regretted that this proposal had been omitted.

The President replied that it had not been the purpose of the Bureau to leave out anything, but the

Bureau was of opinion that they could not express an opinion in this matter because the Council was a purely scientific body and this proposal was of administrative kind.

Dr. TÅNING said that the proposal would very likely raise some opposition from the fishery industry.

Mr. DOBSON thought those present would understand quite clearly what would be the effect of sending this recommendation to the Icelandic Government, who would certainly be in favour of it and take the necessary steps. This would require a convention which would have to be accepted by all the other countries and ratified by the appropriate Governments. That he suggested was the proper place to deal with compensation.

Mr. GRAHAM pointed out that the reason why the Sub-Committee had placed this proposal of a compensation before the Council was that they could not see the experiment becoming a success without the goodwill of the fisheries. They had seen it as a scientific recommendation and hoped that it would go intact into the recommendations.

The President said that there was no doubt about the Council's sympathy with the fisheries, but in view of the fact that the proposal should be carried through as a convention it was correct only to strike these words in spite of our sympathy with the Icelandic fishermen.

Dr. TÅNING said that after the President had explained this matter and Mr. DOBSON the procedure for the future he withdrew his proposal.

Mr. DOBSON, however, then suggested that in the covering letter to the Icelandic Government there might be inserted some such phrase as that the Council recognises that these proposals might involve the question of compensation to the fishermen, but that this would be a question which the Icelandic Government would no doubt give attention in submitting the proposals to the other Governments concerned.

The President asked Mr. FRIÐRIKSSON if he accepted this to which Mr. FRIÐRIKSSON agreed.

The Recommendations of Committees were adopted.

Point 17 of the Agenda. Estimates.

At the request of the President Mr. DOBSON then presented to the Council the Estimates as amended in the light of the recommendations of Committees.

Mr. DOBSON said that first of all it was a great pleasure to him to announce to the Council that the Polish Delegate, Mr. BOROWIK, by letter dated August 12th 1946 had informed the General Secretary that the Polish contributions for the years 1945/46 and 1946/47 were due in a few days. Also the Spanish Delegate, Admiral GARCIA RODRIGUEZ, had by letter informed the General Secretary that Spain would pay Kr. 10,000.00.

In respect of Expenditure Mr. DOBSON pointed to the following additions and alterations:

I. Incidentals. According to the decision of the Meeting of Delegates to nominate Mr. DOBSON first Vice-President with an honorarium of 3,000 Kr. this sum had been added. The Bureau, being of opinion that the Editorship of the Journal claimed a considerable amount of work, had decided to propose to the Council to pay to the Editor an amount of 4,000 Kr. instead of as before the war Kr. 3,000.00. and to add hereto 2,000 Kr. for assistance instead of 1,000 Kr., i. e., Kr. 6,000.00 in total. The nomination of Dr. CLARK as Chairman of the Consultative Committee carried with it a saving on the item Chairmen of Committees, as Dr. CLARK, although remaining Chairman of the Northern North Sea Committee would not draw any honorarium on that account. On the other hand the recommendations of the North-Western Area Committee to appoint Mr. FRIÐRIKSSON Vice-Chairman carried with it an addition of 2,000 Kr., and on account of the Plankton Committee's proposal to accord a remuneration to Dr. JESPERSEN for editing the Plankton Sheets, the Bureau proposed to place up to 1,000 Kr. at disposal for this purpose.

III. Hydrographical Staff. Items 2 and 3 "Hydrographer" and "Hydrographical Secretary" were kept as before subject to an arrangement for raise in salary to Mr. SMED who according to the Hydrographical Committee's recommendation was going to take over Dr. JACOBSEN's work, and an amount for assistance was included.

After the two items Headquarter Staff and Hydrographical Staff an additional 8,000 Kr. "at disposal for the General Secretary" should be noted. The Bureau, having learned that the Danish Government was increasing the salaries of their employees had decided to propose to the Council to leave to the General Secretary to make such adjustments of the salaries under items II,4-8 and III,4 as he thought necessary to bring the salaries into line with what the Danish Government paid for similar work.

IV. The Office Expenses had been raised by 1,400 Kr. for purchase of essential equipment for the proper and efficient working of the staff.

V. Travelling Expenses. Mr. DOBSON said that these were always difficult to estimate, and in view of the fact that the Meeting of Sardine Experts in Biarritz, several times postponed, would not take place until in the financial year 1947/48, the original figure for Travelling Expenses had been reduced by 3,000 Kr. to Kr. 20,000.00.

VI. Item Printing and Distribution had on the other hand been raised by 2,000 Kr. to Kr. 45,000 in order to be on the safe side.

VII. Pension Fund: 3.500 Kr. was included according to standing resolutions.

VIII. Extraordinary Expenses. Mrs. JACOBSEN —Kr. 2,500—followed the usual practice of the Council to pay an officer's widow 6 month's salary. Mrs. JACOBSEN had already been paid one month salary on the past year's budget. Kr. 2,000.00 was proposed to Mr. PAUL HANSEN to make a report on the Greenland Cod question, and Kr. 1,500.00 for recording the temperature and salinity observations in the Card Index, as proposed by the Sub-Committee for

considering the Card Index of the International Council, as an annual expense, while another proposal in respect of payment of 3,000.00 Kr. once for the remaining checking of the Card Index had been deferred by the Bureau until a later year.

As to the Receipts Mr. DOBSON pointed to the addition of Poland's and Spain's contributions and drew attention to the fact that Holland and Finland were figuring in blank, as they had already paid their contributions during the war, and it had last year been agreed that these contributions should cover the years 1945/46 and 1946/47.

An Excess of Expenditure over Income of 44,000 Kroner was estimated, this would be drawn from the Reserve of 291,000 Kr. which had been worked up during the war years. It was to be hoped that next year the countries which the Council had invited to join the Council would be Members of the Council and that their contributions would be added to the Receipts.

The Estimates were then adopted.

Point 18 of the Agenda. Nomination of Finance Committee, Editors etc.

In addition to the permanent members of the Finance Committee, viz., the President, and the Danish Delegates Mr. FARRAN, Professor KOCH and Mr. DE WATTEVILLE were nominated members of the Finance Committee.

Dr. ROSÉN was re-elected Editor for Statistics and Mr. LUMBY Editor of the Journal.

According to the "Organisation of the Council as revised in 1934", the Chairman of the Statistical, the Hydrographical, Salmon and Trout, and Plankton Committees are to be nominated by the Council and thus Professor Sir D'ARCY THOMPSON, Professor MARTIN KNUDSEN and Professor KNUT DAHL were nominated as proposed by their Committees, and Mr. F. S. RUSSELL was elected Chairman of the Plankton Committee as also proposed by it.

Point 19 of the Agenda. Time and Place for next Council Meeting.

The Bureau proposed to hold the next meeting of the Council in Copenhagen probably some time in September, the date to be fixed later by the Bureau. This was adopted with acclamation.

Point 20 of the Agenda. Other Business.

Mr. DOBSON said that in pt. 5 of the discussions of the North-Eastern Area Committee the question of the salaries etc. of scientific workers engaged in fishery research was raised.

The British Government had recently issued a "White Paper" entitled "The Scientific Civil Service" indicating the proposals of the Government for the establishment of an improved basis of remuneration for scientific employment of all kinds under the Government.

A note[1]) was laid on the table which had been accepted by the Bureau and warmly supported by M. TISSIER who had stated that the French Government were taking similar steps. The Bureau proposed to the meeting that this note should be sent by the International Council through the Danish Foreign Office with a brief covering letter to all participating Governments.

The President thanked Mr. DOBSON for his initiative and expressed the view that all had the greatest sympathy with this question.

The proposal was adopted.

Point 21 of the Agenda. Conclusion of the Meeting.

The President moved a very hearty vote of thanks to Dr. RUSSELL for all his work as Chairman of the Consultative Committee during the past years. (Acclamation).

Dr. RUSSELL briefly thanked and expressed his regret that he was obliged to leave his chairmanship on account of ill health.

Mr. DOBSON on behalf of the British Delegation thanked Dr. RUSSELL for his work. He felt sure that the time would come when we all would look back to Dr. RUSSELL's and his colleague's Report on Overfishing as a great contribution to the subject. Dr. RUSSELL had worked during the war under very difficult conditions on account of his ill health.

Dr. RUSSELL thanked Mr. DOBSON for his kind words.

The President then moved a hearty vote of thanks to Professor GRAN who resigned as Chairman of the Plankton Committee. (Acclamation).

The President then addressed to Dr. ANDERSSON the heartiest thanks of the Council to the Swedish Government for the splendid reception and thanked especially Miss RÅLAMB, Dr. HESSLE and Dr. JOHNSON for their valuable assistance. He further proposed to send a telegram to the President of the Svenska Hydrografisk-Biologiska Kommissionen, Governor JACOBSSON, who had been the host at all the luncheons and the dinner.

This was accepted with acclamation.

The President expressed the Council's thanks to the General Secretary and the staff.

Dr. ANDERSSON thanked on behalf of the Swedish Delegation for the kind words addressed to them and to the Swedish Government, and congratulated the Delegates and Experts with the work they had carried out.

Mr. MAURICE on behalf of all thanked the President for the excellent way in which he had directed the Meeting in spite of his ill health. Mr. MAURICE felt sure that all agreed we owed the President a great depth of gratitude.

The President thanked Mr. MAURICE for his kind words and continued that he could not resist the temptation of saying some quite private words: "In my opening speech I tried to give you a very short

[1]) see Appendix.

and primitive review of some of my ideas. I have tried to study whether my ideas have any hope to meet the interest of all our co-operators and shall leave this meeting with the optimistic belief that actually the interest for a concentration of such great problems as "overfishing", "cultivating the sea" and the original idea which created this Council the relation between "l'individu et l'environnement" is increasing and this has been a great pleasure to me.

With these words I conclude the Meeting."

APPENDIX

Note

prepared by the International Council for the Exploration of the Sea on the Problem of scientific staff for fishery research.

At its 34th Meeting held in Stockholm from 12—17th August 1946, the Council had under discussion various matters affecting the staffing of the scientific operations now being carried out by the various countries participating in the Council's programme. Attention was called to the fact that the effective carrying out of the programme, coordinated by the Council, depended upon an adequate supply of trained scientists for serving in the laboratories and on the research ships of the various participating countries.

It was evident that in most countries there is a shortage of trained fishery scientists. In order that progress may be made with the programme of research which it is the duty of the Council to coordinate, the Council attach the greatest importance to the recruitment for fishery research of young scientists of first class ability.

It appears that the prospects at present offered by fishery research as a career may not be good enough to attract such scientists in competition with other openings which may be available to them. The Council has observed that the British Government has recently issued a White Paper entitled "The Scientific Civil Service" indicating the proposals of the Government for the establishment of an improved basis of remuneration for scientific employment of all kinds under the Government which will give a much greater career value to such work. A copy of the White Paper is enclosed[1]) and the Council desires to express the hope that the Governments who participate in the work of the Council and contribute to its funds will consider the question of augmenting their scientific staff for fishery research where this appears to be required and of rendering such research an attractive career.

[1]) Only to the participating Governments.

Estimate for Pension Fund Account.

	D. Kr.		D. Kr.
Balance as per July 21st 1947	108,452.10	Balance as per July 22nd 1946	100,417.10
		Transfer from revenue	3,500.00
		Interests (estimated)	4,535.00
	108,452.10		108,452.10

Estimates

of

the International Council for the Exploration of the Sea for the Financial Year 1946—47.

EXPENDITURE:—

	D. Kr.	D. Kr.
I. Incidentals.		
1. President	6,000.00	
2. Vice-President	3,000.00	
3. Editor of the Journal	6,000.00	
4. Editor of Statistics	2,000.00	
5. Chairman of Consultative Committee	3,000.00	
6. Chairmen and Vice-Chairman of Committees	22,000.00	
7. Editor of Plankton Sheets up to	1,000.00	
		43,000.00
II. Headquarter Staff.		
1. General Secretary	9,000.00	
2. Biological Assist.	3,000.00	
3. 1st Assistant Secr.	9,000.00	
4. 2nd —	6,900.00	
5. Statistical Secr.	6,900.00	
6. Clerical Assistant	4,800.00	
7. — —	4,500.00	
8. — —	3,600.00	
		47,700.00
III. Hydrographical Staff.		
1. Hydrographical Consultant	3,000.00	
2. Hydrographer 3. Hydrographical Secr.	12,900.00	
4. Hydrographical Assistant	3,600.00	
		19,500.00
At disposal for General Secretary for augmentation of salaries		8,000.00
IV. Office Expenses		19,400.00
V. Travelling Expenses		20,000.00
VI. Printing and Distribution		45,000.00
VII. Pension Fund		3,500.00
VIII. Extraordinary Expenses.		
Mrs. Jacobsen	2,500.00	
Mr. Paul Hansen (N.-W. Area Ctee. Rec.)	2,000.00	
Card-Index (Hydr. Ctee Rec.)	1,500.00	
		6,000.00
Total Expenditure		212,100.00

RECEIPTS:—

	D. Kr.	D. Kr.
I. Contributions:		
1. Outstanding		21,347.20
2. From *1945/46*: not included in last year's budget		
Poland	10,000.00	
Spain	10,000.00	20,000.00
3. From *1946/47*		
France	20,000.00	
Great Britain	20,000.00	
Spain	10,000.00	
Belgium	10,000.00	
Denmark	10,000.00	
Éire	10,000.00	
Holland	0,00	
Iceland	10,000.00	
Norway	10,000.00	
Poland	10,000.00	
Sweden	10,000.00	
Finland	0,00	
		120,000.00
II. Interests on Bank Deposits	700,00	
— - Investm.	5,000.00	
		5,700.00
III. Sale of Publications		800.00
Estimated Excess of Expenditure over Receipts to be drawn from the Reserve		44,252,80
		212.100,00

List of Members of Committees.

(One member, only, from each country is entitled to vote.)

Consultative Committee and Editorial Committee.

Dr. R. S. CLARK, Chairman,
Mr. G. ROLLEFSEN,
Dr. Å. V. TÅNING,
Mr. Á. FRIÐRIKSSON,
Prof. JEAN LE GALL,
Mr. R. S. WIMPENNY,
Dr. E. M. POULSEN,
Dr. K. A. ANDERSSON,
Prof. MARTIN KNUDSEN,
Dr. F. S. RUSSELL,
Prof. Sir D'ARCY W. THOMPSON,
Prof. KNUT DAHL,
failing him Mr. S. SØMME,
Dr. N. A. MACKINTOSH.

North Eastern Area Committee.

Denmark:	Dr. Å. V. TÅNING,
Éire:	Mr. G. P. FARRAN,
England:	Mr. M. GRAHAM,
Finland:	Prof. E. PALMÉN,
France:	Prof. MARCEL PRENANT,
Iceland:	Mr. JÓN JÓNSEN,
Norway:	**Mr. G. ROLLEFSEN, Chairman,**
Scotland:	Dr. H. WOOD,
Sweden:	Dr. A. R. MOLANDER.

North Western Area Committee.

Denmark:	**Dr. Å. VEDEL TÅNING, Chairman,**
Éire:	Mr. G. P. FARRAN,
England:	Mr. M. GRAHAM,
France:	Prof. P. DRACH,
failing him	Prof. M. PRENANT,
Holland:	Dr. B. HAVINGA,
Iceland:	**Mr. Á. FRIÐRIKSSON, Vice-Chairman,**
Norway:	Mr. F. DEVOLD,
Scotland:	Dr. R. S. CLARK,
Sweden:	Dr. K. A. ANDERSSON.

Atlantic Slope Committee.

Denmark:	Dr. Å. V. TÅNING,
Éire:	Mr. G. P. FARRAN,
England:	Mr. F. S. RUSSELL,
France:	**Prof. JEAN LE GALL, Chairman,**
failing him	Mr. P. DESBROSSES, or
	Dr. J. FURNESTIN, or
	Prof. M. PRENANT, or
	Prof. G. TEISSIER.
Spain:	Prof. RICARDO MONTEQUI PLAZA, or
	Dr. MIGUEL MASSUTI ALZAMORA.

Northern North Sea Committee.

Denmark:	Dr. Å. V. TÅNING,
failing him	Dr. AA. J. C. JENSEN,
Éire:	Mr. G. P. FARRAN,
England:	Mr. R. S. WIMPENNY,
France:	Mr. P. DESBROSSES,
Holland:	Dr. B. HAVINGA,
Norway:	Mr. E. LEA,
Poland:	Dr. F. LUBECKI,
Scotland:	**Dr. R. S. CLARK, Chairman,**
Sweden:	Dr. A. R. MOLANDER.

Southern North Sea Committee.

Belgium:	Prof. H. J. KOCH,
Denmark:	Dr. Å. V. TÅNING,
failing him	Dr. AA. J. C. JENSEN,
England:	**Mr. R. S. WIMPENNY, Chairman,**
failing him	Mr. M. GRAHAM,
France:	Mr. P. DESBROSSES,
Holland:	Dr. B. HAVINGA,

Norway:	Dr. Jens Eggvin,
failing him	Mr. G. Rollefsen,
Poland:	Dr. M. Bogucki,
Scotland:	Dr. H. Wood,
Sweden:	Dr. A. R. Molander.

Transition Area Committee.

Denmark:	**Dr. E. M. POULSEN, Chairman,**
failing him	Dr. Aa. J. C. Jensen,
Norway:	Mr. Paul Bjerkan,
	Dr. Alf Dannevig,
	Prof. Johan T. Ruud,
	Mr. B. Rasmussen,
Poland:	Dr. M. Bogucki,
	Dr. F. A. Lubecki,
Sweden:	Dr. K. A. Andersson,
	Dr. A. R. Molander,
	Prof. Hans Pettersson.
	Dr. H. Höglund.

Baltic Area Committee.

Denmark:	Dr. Aa. J. C. Jensen,
failing him	Dr. E. M. Poulsen,
Finland:	Prof. T. H. Järvi,
failing him	Dr. G. Granqvist,
Poland:	Dr. M. Bogucki,
	Dr. F. A. Lubecki,
Sweden:	**Dr. K. A. ANDERSSON, Chairman,**
	Dr. A. R. Molander, or
	Dr. Chr. Hessle, or
	Dr. H. Alander.

Hydrographical Committee.

Belgium:	Prof. H. J. Koch,
Denmark:	**Prof. MARTIN KNUDSEN, Chairman,**
Éire:	Mr. G. P. Farran,
England:	Mr. J. R. Lumby,
Finland:	Prof. E. Palmén, or
	Dr. G. Granqvist,
France:	Admiral Dyèvre,
Holland:	Mr. H. Keyser,
Iceland:	Dr. H. Einarsson,
Norway:	Dr. Jens Eggvin,
Poland:	Dr. M. Bogucki,
Scotland:	Prof. Sir D'Arcy W. Thompson, or
	Dr. John B. Tait,
Spain:	Dr. Nicanor Menendez Garcia, or
	Commander Fernando Balen Garcia,
Sweden:	Prof. N. O. Zeilon, or
	Prof. Hans Pettersson.

Plankton Committee.

Belgium:	Prof. H. J. Koch,
Denmark:	Prof. Ove Paulsen,
	Dr. P. Jespersen,
	Prof. E. Steemann Nielsen,
	Mr. J. Grøntved,
Éire:	Mr. G. P. Farran,
England:	**Dr. F. S. RUSSELL, Chairman,**
	Mr. M. Graham,
Finland:	Prof. T. H. Järvi,
France:	Dr. L. Fage,
	Mr. F. Bernard,
Holland:	Dr. B. Havinga,
Iceland:	Dr. H. Einarsson,
	Dr. F. Guðmundsson,
Norway:	Dr. Johan T. Ruud,
	Dr. T. Braarud,
Poland:	Dr. M. Bogucki,
Scotland:	Dr. R. S. Clark,
Spain:	Dr. Juan Cuesta Urcelay,
Sweden:	Dr. Hans Höglund.

Statistical Committee.

Belgium:	Mr. Ch. Gilis,
Denmark:	Mr. Aa. J. C. Jensen,
Éire:	Mr. G. P. Farran,
England:	Mr. M. Graham,
Finland:	Prof. T. H. Järvi,
France:	Mr. M. Terrin,
Holland:	Dr. D. J. van Dijk,
Iceland:	Mr. Á. Friðriksson,
Norway:	Prof. Johan T. Ruud,
Poland:	Dr. F. Lubecki,
Scotland:	**Prof. Sir D'ARCY W. THOMPSON, Chairman,**
failing him	Dr. R. S. Clark,
Spain:	Captain Pedro Lapique Suarez, or
	Dr. Luis Bellon Uriarte,
Sweden:	Dr. Niels Rosén.

Salmon and Trout Committee.

Denmark:	Dr. E. M. Poulsen,
failing him	Mr. C. V. Otterstrøm,
Éire:	Mr. A. E. J. Went,
England:	Mr. F. T. K. Pentelow,
Finland:	Prof. T. H. Järvi,
France:	Mr. Larrieu,
failing him	Mr. R. Vibert,
Holland:	Dr. D. J. van Dijk,
Iceland:	Dr. Þór Guðjohnsson,
Norway:	**Prof. K. DAHL, Chairman,**
failing him	Mr. S. Sømme,
Poland:	Dr. St. Zarnecki,
Scotland:	Mr. W. J. M. Menzies,
Spain:	Dr. Juan Cuesta Urcelay,
Sweden:	Dr. Niels Rosén,
failing him	Dr. K. A. Andersson.

Whaling Committee.

Dr. N. A. MACKINTOSH, Chairman,
Prof. J. LE GALL, or
M. TERRIN,
Prof. Sir D'ARCY W. THOMPSON,
Dr. Å. V. TÅNING,
Dr. J. T. RUUD.
Dr. J. BOROWIK,
Dr. D. J. VAN DIJK,
Dr. ÁRNI FRIÐRIKSSON.

Finance Committee.

Prof. JOHAN HJORT, Chairman,
Prof. MARTIN KNUDSEN,
Dr. H. BLEGVAD,
Mr. G. P. FARRAN,
Prof. H. KOCH,
Mr. J. E. DE WATTEVILLE.

Sub-Committees.

Sub-Committee on the Faroe Question.

Dr. Å. VEDEL TÅNING, Chairman,
Mr. M. GRAHAM,
Dr. J. LE GALL,
Dr. B. HAVINGA,
Mr. F. DEVOLD,
Dr. R. S. CLARK,
Mr. A. FRIÐRIKSSON.

Sub-Committee for the Standardization of Zooplankton Methods.

Mr. F. S. RUSSELL, Chairman,
Dr. J. P. JESPERSEN,
Mr. R. S. WIMPENNY,
Mr. J. H. FRASER,
Dr. H. HÖGLUND,
Mr. K. F. WIBORG.

Sub-Committee for Organization of Combined Hydrographical-Biological Investigations.

Dr. H. BLEGVAD, Chairman,
Dr. J. EGGVIN,
Dr. T. BRAARUD,
Prof. N. O. ZEILON,
Dr. F. S. RUSSELL,
Mr. H. THOMSEN,
Mr. J. R. LUMBY,
Dr. J. B. TAIT,
Mr. J. SMED, Secretary.

ENGLISH VERSION

Special Scientific Meeting.

Herring Problems.

Chairman: Dr. K. A. Andersson.
August 16th, 1946, at 9.30 a. m.

The following lectures were given:

Dr. H. Wood: The Herring of the North-Western North Sea.

Mr. Einar Lea: The Asdic Instrument in the Fisheries Service.

Dr. B. Havinga read a paper by G. P. Baerends: On unusual Catches of Herring in the Waddenzee in April 1946.

Dr. K. A. Andersson: Some Remarks on the Fluctuations in the Herring Fishery on the west Coast of Sweden.

The papers presented and summarized will appear in a special volume of the series Rapp. et Proc.-Verb.

Report and Recommendations of the Consultative Committee.

Chairman: Dr. E. S. Russell.

The Committee met on August 12th, 1946, at 5.00 p. m. and on August 16th at 2.30 p. m.

I. Proceedings.

The Chairman opened the meeting and initiated a discussion of the Progress Report which had been distributed to the members.

A short reference was made to Mr. Dobson's statement on the present position of the Overfishing Question arising out of the Conference held in London in March-April, 1946.

Dr. K. A. Andersson suggested that all Chairmen of Area Committees make up programmes for studying the effect of the measures proposed by that Conference.

The Chairman of the Transition Area Committee said that owing to pressure of work arising out of the reorganisation of the Fisheries Department the Norwegian Government had not yet been able to take the problem of the protection of *Pandalus*, *Nephrops* and *Homarus* in hand.

The report prepared by the Sub-Committee to consider the Index Cards was referred to the Hydrographical Committee (see App. 1, I, to that Committee's report).

The Consultative Committee approved the report of the meeting of the Herring Experts held at Aberdeen in June last[1]) and referred Recommendation No. 11 to the Statistical Committee.

The Chairman referred to the difficulties encountered in the production of publications; it was agreed that the possibility of printing in Sweden should be examined.

Mr. van Dijk regretted that Holland had not been able to send representatives to the Herring Meeting at Aberdeen; he further suggested that a closer co-operation be established between the biological experts of the various countries, especially in the form of definite general programmes for the biological investigations of the co-operating countries.

The Chairman called attention to the programmes prepared by the various Area Committees and invited the Dutch Delegates to attend the meetings of these Committees. He specially stressed the concerted investigations regarding the effect of the war on the stocks of fish which would be found on the programmes of all committees.

The reports of the Committees were discussed and passed—see the recommendations below. It was noted with regret that Prof. Gran had retired from the Chairmanship of the Plankton Committee; his successor, Mr. F. S. Russell, was welcomed by the members.

Dr. E. S. Russell informed the members that he regretted his inability to continue as Chairman of the Consultative Committee since he had retired from the Fisheries Service. Dr. Tåning thanked him for the admirable manner in which he had conducted the business of the Committee, adding that they fully understood his reasons for leaving them. As his successor he proposed Dr. R. S. Clark, who was unanimously elected by acclamation.

Dr. Clark thanked the Committee for the honour conferred upon him and promised to do his best to maintain the same standard as hitherto.

II. Recommendations.

1. Reports of Committees.

The reports of Committees were presented and the following recommendations were passed in addition to those recommendations specially emphasized by the Committee and set out in separate paragraphs below.

(a) North-Western Area Committee: emphasizing the importance of halibut studies; proposing the appointment of Mr. Árni Friðriksson as Vice-Chairman;

Faxa Bay Sub-Committee: the closure of the Faxa Bay for a period of ten years as an international experiment on the benefit of closure of nursery grounds;

(b) Atlantic Slope Committee: a meeting on methods of studying the sardine and other clupeoid fish (except the herring); to take place in 1947 according to plans to be laid before the Consultative Committee next year by M. le Gall;

(c) Northern North Sea Committee: the preparation of monthly herring charts to be entrusted to Dr. W. C. Hodgson;

(d) Southern North Sea: stressing the importance of testing the effect of different sizes of mesh, gear and ships on the demersal fishery;

[1]) See this volume, pt. II, pp. 8–9.

(e) Hydrographical Committee: that the hydrographical card-index be continued; endorsing the proposals put forward by the Sub-Committee for Organisation of Combined Hydrographical and Biological Investigations, and asking the Service Hydrographique to co-ordinate the activities of different countries in regard to the sampling from commercial vessels and lightships, and to systematize methods;

(f) Plankton Committee: that financial assistance should be given to Dr. P. Jespersen for editing the plankton sheets, and that a Sub-Committee be formed to study the question of the standardisation of zooplankton methods;

(g) Whaling Committee: that annual whaling statistics from the Antarctic should continue to be collected and that in addition to the Antarctic whaling areas II to V of Hjort, Lie and Ruud the new areas I and VI provisionally defined by Mackintosh (1942) should be accepted.

2. Meeting of Experts.

The recommendation of the Transition Area Committee that a meeting of experts should be held in connection with the next Council Meeting in order to consider and propose measures for the protection of the stock of *Pandalus borealis*, *Nephrops norvegicus* and *Homarus vulgaris* was adopted. It was suggested that eight experts should meet one day in advance of the next Council Meeting to agree on methods.

3. Special Scientific Meetings.

The Committee recommended that a Special Scientific Meeting be held at the next meeting of the Council to discuss "The Effect of the War on the Stocks of Commercial Food Fishes", and that Dr. R. S. Clark should act as Convener for the purpose.

The Committee recommended that a Special Scientific Meeting be held at the next meeting of the Council to discuss "The Rearing of Fish" and that Mr. G. Rollefsen should act as Convener for the purpose.

4. Publications.

The Committee recommended that the paper by Mr. G. Rollefsen on "The Arcto-Norwegian Stock of Cod" read on August 13th should be published as soon as possible.

The Committee recommended that the papers read at the special meeting held on August 16th on Herring Problems should be published as soon as possible by the International Council.

The Committee further endorsed the recommendations of the various Committees regarding the publication by the Council of the following papers: the Faxa Bay report, a general review on the Greenland Cod by Mr. Paul M. Hansen, Prof. H. H. Gran's final address to the Plankton Committee and the resumption of the "Rapport Atlantique".

5. Extension of the Council's Area.

The Committee called attention to the proposal of the Atlantic Slope Committee that its area should be extended to include the waters from the latitude of St. Kilda to the Equator, and recommended its adoption.

Reports and Programmes of Area Committees.

North-Eastern Area Committee.

Chairman: Mr. G. Rollefsen.
The Committee met on August 13th, 1946, at 9.30 a. m.

I. Proceedings.

1) Mr. G. Rollefsen gave a lecture entitled: "The Arcto-Norwegian Stock of Cod in the Light of recent Investigations".

2) The Administrative Report for 1945—46 was adopted.

3) The revised list of members was accepted.

4) Several members expressed the view that certain difficulties existed as to recruitment of the scientific staff owing to the low salaries and the small opportunity of advancement. In this connection England referred to a White Paper concerning Reorganisation of the Scientific Civil Service (Cmd. 6679)[1]).

5) The question if it was desirable to recommend a special cod meeting in the near future was discussed. It was decided to postpone the proposal of such a meeting till next year.

6) Mr. G. Rollefsen was re-elected Chairman for the ensuing year.

[1]) See also the resolution passed by the Council, Point 20.

II. Programme of Work.

1) Denmark stated that they could contribute very little to the work in the area except for observations taken on the cruises to and from the North-Western Area.

2) England stated that they would have a new research ship for work in the Arctic from 1948. The programme was to carry out six trips a year to investigate the relation of the hydrographic and plankton conditions to the catches of cod in the Bear Island area.

England promised to keep in contact with the Norwegian investigations and co-operate as far as circumstances permitted.

3) Norway stated that they also would have a new research ship in about two years. The ship would mainly be concerned with work in the North Sea and the North-Eastern Area. The investigations would be expanded to all important food fishes.

Plankton investigations making use of new sampling methods would concentrate upon eggs and fry and food organisms.

The importance of co-operation in halibut investigations was stressed.

North-Western Area Committee.

Chairman: Dr. Å. Vedel Tåning.
The Committee met on August 15th, 1946, at 9.30 a. m.

I. Proceedings.

1) The Chairman opened the meeting. The proposals for two small alterations of the report from the Faxa Bay Sub-Committee had been distributed and were adopted. Two papers from the Faroe Sub-Committee, one by the Chairman, the other by Mr. B. B. Rae, Aberdeen, were mentioned and adopted without discussion.

2) The Chairman laid the Administrative Report before the Committee and apologized that it had not been possible to carry out more work since the Council Meeting in Copenhagen last year.

3) The Chairman drew the attention of the Committee to some of the many problems to be solved in the future. He recommended that all biological and hydrographical information on the influence of climatic changes in this century be collected in the near future. This would produce a clear survey of the present position of knowledge, particularly as regards the fluctuations in the stocks of fish. He recommended to the members of the Committee that attention should be paid to many new instruments devised, such as for instance the bathythermograph.

4) The Chairman further mentioned Dr. Clark's proposal on more general investigations on the biology

of halibut. This matter with special regard to a minimum size to be introduced was discussed by Mr. Devold, who gave a short report on the net-fishing for halibut in Norway, by Dr. Clark, Mr. Graham, Mr. Havinga, Mr. Friðriksson, Prof. le Gall, and the Chairman. A recommendation was proposed on the halibut investigations (see V, 1).

5) Dr. Å. Vedel Tåning was re-elected Chairman for the ensuing year.

II. Programme of Work.

The Chairman asked the different countries for outlines of the programme they might be able to carry out in the area for the coming year, especially as regards cruises and investigations of halibut. He took it for granted that the more usual routine work would be continued as proposed at the meeting in October last year. The replies from the various countries ran as follows:

1) Denmark: A cruise will be made by the "Dana" this autumn to the area and another cruise is intended to take place next spring, partly to the great area south of Iceland-Greenland. Research work on halibut and other species will be continued especially in Faroese waters as well as off Greenland where Mr. Paul Hansen will be working on his new ship "Adolf Jensen".

2) Éire: No work at sea.

3) England: No cruise to this area could be promised next year, but market investigations, especially on halibut, would be run as far as possible.

4) France: A cruise could possibly be made next year and investigations on halibut including a search for spawning grounds in the waters off France and Ireland.

5) Holland: No cruise could be made, but work should be carried out, if possible, on halibut from the market.

6) Iceland: Provided that a research vessel would be at disposal next year, which was likely, intensive work at sea would be carried out. Further marking, measuring and age-determinations of halibut were promised.

7) Norway: Would not work in the North-Western Area, but would carry out halibut investigations in the North-Eastern Area.

8) Scotland: Marking experiments on small halibut would be carried out in Scottish waters and one or more cruises made, perhaps also to the Faroes region.

9) Sweden: No work at sea.

III. The Faroe Question.

A proposal from the Chairman that the Faroe Question should be considered by the same members in the coming year was unanimously agreed. The programme of work had been adopted at the October meeting last year. Work at sea in the Faroe area is still dangerous owing to mines.

IV. The Faxa Bay Sub-Committee.

The Chairman laid before the conference a brief account of the work of this sub-committee and asked the committee for remarks on the report, the 26 papers or the recommendations. No remarks were made. The Chairman then stated that he regarded the Sub-Committee as having finished its work, and the report was unanimously adopted and transmitted to the Consultative Committee.

V. Recommendations.

It was recommended that:

1) Denmark, France, Iceland, Norway and Scotland be requested to devote special attention to the study of the halibut, that

2) Mr. Paul Hansen be asked to prepare a general review on the Greenland Cod Question with special regard to alterations in the stock during this century, and that a honorarium be granted him for this work, and that

3) Mr. Árni Friðriksson be appointed Vice-Chairman of the Committee, and that a honorarium as Vice-Chairman be granted him.

4) Finally, the Committee adopted the recommendations proposed by the Sub-Committee on the Faxa Bay Question (see the appended report).

Faxa Bay Sub-Committee.

Chairman: Dr. Å. Vedel Tåning.

The Sub-Committee met on August 10th, 1946, at 10.00 a. m.

Present: The members and besides Dr. F. S. Russell and M. M. Terrin.

I. Proceedings.

The Chairman distributed the report which had been prepared by the editorial members, and also paper 16. He outlined the problem and concluded that an experimental closure of the bay might be beneficial to the fishery.

Mr. Graham emphasized the great importance of intensive research work in Icelandic waters during the period of closure and Dr. Clark drew attention to the need of collecting much more information on the biology of the halibut not only in Icelandic waters but over all the European fishing grounds, where this species occurs. The Chairman and Mr. Friðriks-

SON pointed out that although we do not know the biology of this fish in detail, we know enough to conclude that protection of the young fish is likely to be beneficial to the fishery.

After some discussion by the members and Dr. RUSSELL it was recommended that additional paragraphs be inserted in the working scheme of the report (proposed marking experiments). Further it was agreed that recommendation A 4 should be altered to read that the proposed research begin at once.

Finally the report with the attached recommendations was adopted and submitted to the North-Western Area Committee.

II. Recommendations.

It is recommended:

A. 1. That an international experiment on the benefit of closure of nursery grounds should be carried out in Icelandic waters. For this purpose Faxa Bay within a line joining Gardskagi to Malarrif is recommended.

2.[1]) In the area every kind of trawling or seine netting should be prohibited; compensation should be made to the fisheries and international policing at maximum efficiency is essential to the experiment.

3. The period of the experiment should be ten years and the bay should remain closed for an additional five years in order to provide time for ratification of any agreement on its permanent closure or opening.

4. As a first essential the investigations given on p. 22 of the report[2]) should be put in hand without delay, in order to provide a firm basis for an experimental closure.

B. That the present report be published.

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[1]) Passed by the Council amended as follows: "In the area every kind of trawling or seine netting should be prohibited in which case international policing at maximum efficiency is essential to the experiment."

[2]) During the 10 years of observation scientific work in the bay should be of two kinds:

The first kind of scientific work would aim at assessing the effect of closure on the fisheries in Icelandic waters.

The species concerned are haddock, plaice, halibut and lemon sole, of which it is hoped that appreciably increased weight of fish will be taken in fisheries outside the bay, more than compensating for the reduction of fisheries inside the bay and the cost of policing.

The means for assessing this benefit are:

1) marking, of plaice and lemon soles of 25 cm. length or greater, and of halibut of 30 cm. length or greater. Marking of haddock, or of smaller flatfish, would not give profitable returns, owing to the smaller chance of survival of the process of marking.

2) Commercial statistics of fisheries in Icelandic waters.

Marking could show whether or not closure of the bay had caused appreciable increase in migration from the bay to other fishing areas.

Thus, if regular fishing in the bay with standard gear year by year, were always carried out for the same number of hours, and if the same proportion of the catch were always marked, the number of fish recaptured by fishermen elsewhere would be an index of the supply of fish from the bay to the other fisheries.

If this number of fish recaptured showed a significant upward trend during the 10 years of observation, the closure of the bay would be known to have done some good.

The question would still remain whether the increased emigration was of sufficient magnitude to compensate for the sacrifice of fisheries within the bay—a sacrifice of approximately £ 300,000 worth of fish per annum in the inter-war years.

It is therefore necessary to estimate the amount of the increase in emigration, this could only be done by obtaining the proportion of the catch at Iceland that is derived from the nursery in Faxa Bay. Given that information, and the quantity and value of the total catch in Icelandic waters, it would be possible to evaluate the emigration from the Faxa Bay.

For this purpose it would be necessary to mark fish taken by even fishing on all the nursery grounds round Iceland.

The second kind of information is designed to obtain general information of changes, so that no large factor in the experiment may be overlooked.

At the meeting in Reykjavik, July 1939, the present members of the Faxa Bay Sub-Committee came to an agreement as regards the scientific investigations to be carried out during the closure. The programme should be carried out by research vessels or hired fishing vessels and runs thus:

"**A.** Trawling should be carried out quarterly in the following localities:

1. Fixed territorial station and a station off Engey.
2. Fixed extraterritorial station and in localities worked now by commercial trawlers east of Sydra Hraun and north-east of Sydra Hraun.
3. On a locality just outside the bay: viz. in the Midnessjór.

The material should be used for a comparative study of alterations of the density of the stocks of the important species of food-fishes (plaice, lemon sole, halibut, haddock and cod) and age- and growth-investigations should be carried out.

Moreover seasonal migration of halibut, plaice and haddock should be considered, and if possible, also the immigration of pelagic fry in the bay, especially the post-larval stages of the halibut near the bottom stage.

B. Bottom samples should be carried out in the localities where trawling experiments were made and also on three lines with 10 stations in each, crossing the area from south to north. Bottom samples should be made once a year.

C. Hydrographic observations should be made on the trawling stations and as far as possible every month on the routine station off Skagi and Akranes.

D. Fishing from longline and handline fishing in the closed area should be measured and statistics of these fisheries should be collected."

Atlantic Slope Committee.

Chairman: M. Jean le Gall.

The Committee met on Tuesday, August 13th, 1946, at 4.30 p. m.

I. Proceedings.

1) The Chairman opened the meeting and thanked the members for the important contributions made to the work of the Atlantic Slope Committee during the last year.

2) The administrative report was accepted.

3) The following communications were presented and discussed:

A. Hydrology.

(a) P. Desbrosses: Preliminary results of the cruise of the "Président Théodore Tissier" in July 1946.
(b) F. S. Russell: The phosphate and nitrate content of the surface and deeper water layers of Plymouth Bay[1]).
(c) R. Legendre: The temperature of the surface water in Concarneau Bay.
(d) Captain Michelet: The temperature of the waters on the Grand Bancs during the campaign of 1945 and remarks on the yield of the fishery in relation to the temperature of the deeper water layers.
(e) C. Francis-Boeuf: Oceanographic studies of the littoral, investigations of river and sea-coast environments and of deposits in estuaries.
(f) Commandant L. Beaugé: Circulation of oceanic masses.

B. Biology.

(g) C. F. Hickling: Statistical examination of herring caught by drift-net (March-April-May) and by trawl (June-Sept.) at Milford Haven[1]).
(h) G. P. Farran: Results of observations (measurements and age) made on the fishing grounds of the Irish coast[1]).
(i) C. F. Hickling: Seasonal variations in the mean weight (for a given size) of the sardine from the coasts of Cornwall.—Seasonal variations in the food of this sardine.
(k) P. Desbrosses: Periodic annual variations in the mean number of the vertebrae in the sardine.
(l) J. Furnestin: Note on the food of the anchovy in the Bay of Biscay.
(m) Legendre: Note on the food of the tunny, analyses of the stomach contents.
(n) G. P. Farran: Results of the campaigns of the "Muirchu" in 1938 and 1939. Distribution of mackerel eggs and larvae[1]).
(o) C. F. Hickling: The recovery of the hake fishery[1]).
(p) C. Letaconnoux: The hake of the Gulf and of the western entrance of the Channel in January and February 1946.
(q) C. F. Hickling: Haddock on the Porcupine Bank[1]).
(r) P. Desbrosses: The whiting of the French coast compared with the populations of northern Europe.
(s) P. Desbrosses: Sexual dimorphism in some teleosteans of the French Atlantic coast.

C. Bibliography.

The Chairman submitted to the members for their approval a plan for a "Bibliography" of the publications resulting from investigations in the area covered by the Atlantic Slope Committee.

The first list of this bibliography contains only the papers published in France. The work might be made more useful by including foreign papers. The authors were invited to submit the titles of their papers to the Chairman of the Committee with a short summary.

The bibliography would then be attached to the report of the Committee.

The suggestion was accepted.

4) Southerly extension of the area of the Atlantic Slope Committee. The opening of a laboratory for marine biology at Casablanca, at Dakar (Gorie), and one very near the biological stations at Konakry (French Guinea) and Abidgean (Ivory coast), as well as the development of the sea fisheries off the west coast of Africa, should aid the rapid development of oceanic and biological research on the west coast of Africa.

The Committee approved the suggestion of the Chairman that the Atlantic Slope Committee should in future extend its working area to include the waters from the latitude of St. Kilda in the north to the equator.

5) Resumption of the "Rapport Atlantique". The Committee expressed the opinion that the publication of the "Rapport Atlantique" should be resumed with the understanding that this publication would not duplicate the *Annales Biologiques*; the latter only records the actual observations made in the various areas of the International Council while the Rapport Atlantique would contain the scientific reports based on the observations made in the area of the Atlantique Slope Committee.

6) M. Jean le Gall was re-elected Chairman of the Committee.

[1]) A summary will appear in the Ann. Biol., Vol. II.

II. Programme of Work.

Cruises. France and Denmark will inform each other of the programmes for their cruises as soon as their research vessels can put out to sea again so that the two countries can collaborate in hydrological, oceanographical, or biological research.

Biology. Investigations into the biology of the following species: herring, sardine, sprat, anchovy, tunny, mackerel, horse mackerel, whiting, hake, haddock, cod, the greater sandeel, lobster, Norway lobster, should be carried out in the area according to the programme previously decided upon.

III. Recommendations.

The Committee recommended that the working area of the Atlantic Slope Committee be in future extended to include the waters from the latitude of St. Kilda in the north to the equator.

The Committee recommended that the publication of the "Rapport Atlantique" be resumed.

The Committee recommended (a) that a meeting of sardine experts be held during the coming year in France (Biarritz ou Quimper) and (b) that the programme for this meeting of experts should not only consider the biology of the sardine, but also the biology of other clupeoid fish (sprat, anchovy and sardinella, but not herring).

Northern North Sea Committee.

Chairman: Dr. R. S. Clark.

The Committee met at 9.30 a. m. on August 15th, 1946.

I. Proceedings.

After welcoming the members, the Chairman intimated one change in membership, namely Dr. B. Havinga, to represent Holland in place of Mr. van Riel.

The Chairman reviewed the Progress Report for the year 1945, as published in this volume, part II, and in Ann. Biol. Vol. II, and referred particularly to the predominance of the 1943 year-class in the haddock population, to the high proportion of 3-year-old herring and to the results of an experiment on plaice transplantation which was carried out in collaboration with Southern North Sea colleagues. Reference was also made to contributions by Dr. Aage J. C. Jensen on the Danish herring fishery and by Dr. B. B. Rae on lemon soles.

It was agreed that the circulation of confidential data as recommended by the meeting of herring experts in Aberdeen in June 1946 should be arranged privately among the herring experts themselves.

Dr. J. B. Tait explained the lines of future hydrographical investigations of the Northern North Sea and Faroe-Shetland Channel areas on the basis of knowledge derived from current investigations by means of drift bottles, hydrodynamical studies of the Faroe-Shetland Channel and temperature and salinity distributions in particular small areas of importance to fisheries such as the Fladen Ground and the Scottish herring spawning grounds.

Dr. H. Wood in a brief survey of herring problems emphasized the importance of race investigations.

Dr. R. S. Clark gave a brief account of the operations so far carried out by the Scottish research vessel on the comparative effect of the 70 and 80 mm. cod-end meshes on the haddock stocks. It was suggested that a short review of this communication should be prepared and published by the Council. The results suggest that the larger mesh does allow more immature haddock to escape, but that a further increase in the mesh seems desirable to allow a larger number of these small undersized fish under 10 inches in length to escape capture.

Dr. R. S. Clark was re-elected Chairman unanimously.

II. Programme of Work.

The Chairman stressed the importance of full collaboration between the participating countries in the practical work of fisheries research in the Northern North Sea area. To facilitate such co-operation it was agreed that copies of programmes of projected cruises of the research vessels working in the area should be distributed in advance to all the members of the Committee.

The 1946 cruises of the Scottish research vessel "Explorer" were outlined. Besides general hydrographic and plankton surveys their main objects were (a) the analyses of the fish stocks, and (b) mesh-of-net experiments with meshes ranging from 70 to 120 mm. in successive gradations of 10 mm.

The following co-operation during the year was intimated:

Denmark: Herring trawling, and hydrographic and plankton work from the research vessel "Dana" during the cruises to and from Iceland.

England will collaborate with Scotland in making hydrographical traverses from steamers across the North Sea.

France: Measurements of fish and scale collecting.

Norway: To supplement Scottish herring investigations by operation in parts of the northern area not visited by the Scottish research vessel. Hydrographic co-operation was also assured.

Sweden: Herring investigations to be carried out in the north-western North Sea in September 1946.

III. Recommendations.

It was recommended:

1) That the "Effect of the War on the stocks of commercial food fishes" should form the subject of a special meeting during the period of the Council Meetings at Copenhagen in 1947.

2) That twelve charts should be prepared showing the average monthly distribution of herring and their quality; and that Dr. W. C. Hodgson should collate the requisite data obtained from the various countries concerned.

Southern North Sea Committee.

Chairman: Mr. R. S. Wimpenny.

The Committee met at 2.30 p. m. on August 14th, 1946.

I. Proceedings.

The Chairman gave a brief summary of the scientific observations available from the Southern North Sea area for the year 1945. He also emphasized that the conditions met after the second world war had been most markedly felt in the Southern North Sea and that the Committee had a special responsibility to provide the information required by the Standing Advisory Committee set up by the London Conference to advise on the best way to prevent overfishing.

Dr. Tåning read a short account of the changes during the war in density and growth of young plaice in the Waddensea nursery grounds. He showed that there had been a general increase in the density of the population and that from 1940 to 1943 there was a decrease in the average size of I-group and II-group plaice.

Dr. Jensen referred to the increased catch of North Sea plaice landed at Esbjerg during the war and showed that there had been a slight increase in size.

Dr. Havinga read a paper on the back-calculation of the age of plaice caught off the Dutch coast. The work had been carried out in conjunction with Dr. Baerends and showed that the growth of the different year-classes tended to increase during the war.

A communication from the Head of the Division of Natural Science of UNESCO to the General Secretary of the International Council on the future policy and relation of the International Council was noted. It was also announced that Lt.-Cdr. Lumby and Dr. J. N. Carruthers had drawn the attention of the Committee to the existence of some unpublished lightship data referring to the period just previous to the war and to the early part of the war. The notice of members was also drawn to the existence of a translation of a German account of the post-war cutter fishery from Hamburg.

Mr. R. S. Wimpenny was re-elected Chairman for the ensuing year.

II. Programme of Work.

Belgium: The work of M. Gilis on the spent herring fishery of the Belgian coast will be continued and operations will be extended to the Fladen grounds, and trawling experiments.

Denmark: The Waddensea investigations will be continued and the usual market measurements of North Sea plaice will be carried out particularly from Esbjerg. Marking experiments will be made in the Horns Reef area and in the more central part of the North Sea. If the sea is cleared of mines cruises of a general nature will be made in the Committee's area by the "Dana".

England: The marking of trawl fish in areas of high and constant fishing intensity will be continued at the rate of about 50,000 a year by the 90′ motor trawl "Platessa". The newly converted Admiralty trawler "Sir Lancelot" is expected to start work in October. Cruises will be made in October and November to cover the diatom patch area of the East Anglian herring ground, and from December to February to map out the main plaice spawning grounds. Other cruises will deal with the effect and efficiency of different gears and the monthly operation of the Flamborough line and other stations. Market measurements of demersal and pelagic fish will be continued and the usual assessment of the Shields and East Anglian herring will be supplemented by the testing of new methods and gear from the M. F. V. "Onaway".

France: The usual herring investigations in the

North Sea and Channel will be carried out as in previous years.

Holland: An age-census of plaice will be made by the method of back-calculation and special attention will be given to determining the population density of all species of demersal fish appearing on the fishing grounds.

Poland: No work is likely to be done in the Committee's area during the year.

Scotland: A new motor herring drifter will be obtained during the year and will be used jointly with England. A general cruise will be made in the Dogger area in the autumn.

III. Recommendation.

It was decided to recommend that every effort should be made to provide information as to the efficiency and effect of using different sizes of mesh in different ways and from different types of vessel fishing for dermersal fish. Detailed arrangements to compare the fishing power of vessels of different countries would be arranged between the members concerned by correspondence.

Transition Area Committee.

Chairman: Dr. E. M. Poulsen.

The Committee met on August 14th, 1946, at 9.30 a. m.

I. Proceedings.

1) Communications were delivered on work carried out by the different countries. The problem of the protection of the stock of lobster, Norway lobster and deep-sea prawn was discussed.

2) The following lectures were given and discussed:

A. Molander: The winter-rings in the scales of the sprat.

— The formation of the rings in the otoliths of the plaice.

A. Dannevig: The rich year-class 1938 of cod in the Skagerak.

H. Höglund: The effect of waves upon the mortality of planktonic fish-eggs.

Aa. J. C. Jensen: Danish market measurements.

— The distribution of young herrings of various races.

E. M. Poulsen: Racial investigations upon the sprat in Danish waters.

3) Dr. E. M. Poulsen was elected Chairman for the ensuing year.

II. Programme of Work.

As it is still impossible to know to what a degree the after-effects of the war will hamper the research work at sea a more detailed programme cannot yet be given. Therefore the programme agreed upon at the meeting in October 1945 should be valid also for the ensuing year, however with the following additions:

1) The effects of the measures proposed by the London Overfishing Conference should be followed by means of collecting statistics as well as by means of market measurements and fishing experiments.

2) The mortality of pelagic fish-eggs should be studied partly in nature and partly by means of experiments.

3) The formation of the zones in the otoliths should be studied partly in nature and partly by means of experiments.

III. Recommendation.

The Committee recommends that a meeting of experts should be held in connection with the next Council meeting in order to consider and propose—from a biological point of view—measures for the protection of the stock of *Pandalus borealis*, *Nephrops norvegicus* and *Homarus vulgaris*.

Baltic Area Committee.

Chairman: Dr. K. A. Andersson.
The Committee met at 2.30 p. m. on August 13th, 1946.

I. Proceedings.

1) The Chairman opened the meeting and welcomed the members to Stockholm.

2) The following lectures were given and discussed:

(a) Professor Kurt Buch: Investigations on the Production of Life in the Baltic. He proposed a large programme for investigation on these problems.

(b) Dr. Stina Gripenberg read a paper by Dr. Ilmo Hela on Mackerel on the South Coast of Finland in the Autumn of 1936.

(c) Dr. H. Alander: Report on the Investigation of Herring.

(d) Dr. W. Cieglewicz: Comparative Studies of the Spring and Autum Spawning Herring in the Gulf of Danzig[1]).

(e) Dr. H. Alander: Report on the Investigations of Cod.

(f) Dr. M. Bogucki: Cod Fishery in the Bay of Danzig in 1945-46.

(g) Dr. M. Bogucki read a paper by Dr. Z. Mulicki: The Composition of Commercial Catches of the Flounder in the Bay of Danzig.

3) Dr. K. A. Andersson was re-elected Chairman for the ensuing year.

II. Programme of Work.

The future work should mainly comprise:

1) Continuation of the investigations on herring and cod, as mentioned in the programme of 1945.

2) Investigations on sprat, especially concerning the migrations of the sprat, should be taken up.

3) Investigations on the flatfish (plaice, flounder and dab) are to be continued with a view to consider at the next meeting whether existing conditions call for any alterations in the Southern Baltic Convention now in force.

4) The representatives for each country concerned should prepare themselves to consider whether an international minimum size ought to be introduced for the salmon in the Baltic.

5) The problem concerning the production of life in the Baltic ought to be taken up for investigation.

For this purpose the following investigations are, as far as possible, to be made:

(a) Regular tests of phosphates and nitrogen at different depths during a fixed period, possibly a year, at several fixed stations parallel with quantitative plankton tests.

(b) Laboratory investigations of the total metabolism of certain leading forms of algae (diatoms) under different conditions in respect to light, temperature, nutrient salts. The average rapidity of renewal needs especially to be determined.

(c) Determinations of the total phyto-plankton production according to the Krogh-Langes method to be applied if possible also to determinations of carbon dioxide consumption by tests of pH and excess base.

(d) Photo-electric determinations of the absorption of light at different depths.

(e) The bacteriology of the Baltic.

(f) Determinations of phosphorus in the bottom sediments and in the fresh water supply.

(g) Laboratory investigation regarding the ion adsorption of the colloids in the water.

[1]) A summary will appear in the Ann. Biol., Vol. II.

Reports and Programmes of other Committees.

Hydrographical Committee.

Chairman: Professor MARTIN KNUDSEN.
The Committee met at 2.30 p. m. on August 12th, 14th and 15th, 1946.

I. Proceedings.

The Chairman paid tribute to the late Hydrographer to the Bureau, Dr. J. P. JACOBSEN. With regard to the vacant position Rec. 1 was carried.

It was announced that Mr. KEYSER (Holland) and Admiral DYÈVRE (France) had been nominated members of the Committee.

A discussion took place regarding the material to be enclosed in the next issue of the *Bulletin Hydrographique*. Rec. 2 was carried.

A report from the Sub-Committee (appointed by the Consultative Committee) for Considering the Card-Index of the Council was laid before the Committee (see App. 1). The great value of the Card-Index was emphasized. Rec. 3 was carried.

From the Sub-Committee (appointed by the Consultative Committee) for the Organization of Combined Hydrographical-Biological Investigations a report was laid before the Committee (see App. 2). The recommendation contained in this report was endorsed by the Committee (Rec. 4).

As for the carrying out of this Recommendation it was decided that the General Secretary should be asked to correspond with the members of the Sub-Committee. It was found desirable to have a meeting of the three Scandinavian hydrographic members of the Sub-Committee, and subsidies for such a meeting should be asked for.

In connection with the discussion of these investigations Prof. ZEILON made the following remarks:

I presume that it would be best to arrange a short comparative provisional investigation of an orientating character as soon as possible.

1) I would suggest that, prior to the hydrographical orientation, consecutive co-ordinated observations might be made as a trial for two weeks or rather at least one month from a net of fixed coastal stations first of all in Denmark, Great-Britain, Norway, and Sweden. It will be especially important to arrange for stations permitting judgement of the hydrographical situation in the Scotland-Norway sector as in the Channel. It is most important that the observations are made consecutive, frequent and simultaneous.

2) In respect of the co-ordinated hydrographical-biological orientation cruises should be arranged in the middle of the North Sea to give simultaneous observations of the hydrographical factors.

In respect of the hydrographical problem (2) should give a collation of random samples from the several areas of the North Sea together with data from the coastal stations arrived at through (1). The collation of (1) and (2) is thought useful to judge the possible correlation between data found on the coast and that from the sea.

This collation should be used at once to work out the mathematical methods which would best suit the problem. As a quick calculation must be a primary condition for a future hydrographical-biological information service, we must expect to use a specialized mechanical mathematic equipment.

I believe that I have suggested here some of the questions which may be put forward from the hydrographical side in the discussions of the Sub-Committee.

Lt.-Cdr. LUMBY read a proposal concerning water sampling from commercial ships. Rec. 5 was carried.

Dr. CARRUTHERS recalled that he had sent two communications to the Council from Germany of which the first was a prospectus of Prof. DEFANT's 3-volume book which had been circulated from the Council and expressions of opinion invited. Dr. CARRUTHERS had since heard more from Prof. DEFANT and in a letter dated from Innsbruck on March 27th, 1946, Prof. DEFANT declared that the Viennese firm of Julius Springer were prepared to print the treatise "if the conditions are more favourable". This letter came from the author's present address: Institut für Meteorologie und Geophysik der Universität, Innsbruck, Schop Strasse 41.

Dr. CARRUTHERS emphazised that it could be no easy task to arrange for the printing of the book, and Prof. PETTERSSON asked if it would not be a good thing if Prof. DEFANT could be told that very much interest had been expressed in his book in the Committee, and that many people would contract to buy it on issue. That might well help Prof. DEFANT with his publishers.

Dr. CARRUTHERS agreed to send an appropriate letter to Dr. DEFANT accordingly.

Dr. CARRUTHERS on being asked by the Chairman if he could make any communication about the state of affairs in Germany, stated that he had brought with him to lay on the table certain relevant papers — for examination by those interested. One such paper was a report setting out a brief survey of what the German oceanographers had done during the last ten years. Another document had brief summaries of 25 unpublished papers recently written by the Germans — since the end of the War. Still another paper related to a recent trial of a semi-automatic titration method.

In addition to the information made known about Germany, two further papers were also tabled by Dr. CARRUTHERS giving the titles of many very recent Japanese papers on oceanography and marine biology.

The following lectures were given at the meetings:

HANS PETTERSSON: A Swedish Deep-Sea Expedition.

BØRGE KULLENBERG: Core-Sampling at Great Depths.

O. NYBELIN: Quelques problèmes biologiques des mers profondes.

NIELS G. JOHNSON: A Standard Instrument for Measuring Transparency and Daylight in the Sea.

JENS EGGVIN: Prognoses about Oceanographic Situations in Norwegian Waters and some Practical Results.

EILERT THEISEN: Correction of Deep-Sea Temperatures and a Handy Way of making Correction Charts.

Professor KNUDSEN was re-elected Chairman for the ensuing year.

II. Recommendations.

1) The Hydrographical Committee proposed that the position of Hydrographer to the Council vacant as a result of the death of Dr. JACOBSEN should be filled by Magister JENS SMED. Owing to the increased responsibility his salary should be appropriately increased.

2) It is recommended that an issue of the *Bulletin Hydrgoraphique* comprising unpublished hydrographic material from years 1940—1945 and possibly 1946, and with an appendix containing unpublished material from the immediately foregoing years, if possible including observations from the western North Atlantic also, should be worked out and published by the Service Hydrographique in continuity with the former Bulletins.

3) It is recommended that the proposals from the Sub-Committee for Considering the Hydrographical-Biological Card-Index of the Council should be followed (see App. 1).

4) The Committee recommended the resolution from the Sub-Committee for Organization of Combined Hydrographical-Biological Investigations to be adopted by the Council (see App. 2, II).

5) It is recommended that the Service Hydrographique be asked to co-ordinate the activities of different countries in regard to the sampling from commercial vessels and lightships, to .get the best coverage of the waters in which the Council is interested, and to systematize methods.

Appendix 1.

Sub-Committee for Considering the Hydrographical-Biological Card-Index of the Council.

Report to the Consultative Committee.

The said Sub-Committee was nominated at the Council Meeting in 1945. It consists of Messrs. H. BLEGVAD, MARTIN KNUDSEN (failing him J. P. JACOBSEN), and Å. VEDEL TÅNING.

The Sub-Committee has considered the matter and delivered the following report.

The card-index in its present state has been prepared at the initiative of the late Administrative Secretary Captain W. NELLEMOSE (cfr. the report prepared by J. SMED in Rapp. et Proc.-Verb., Vol. No. 116, p. 17).

In the first place the Sub-Committee is of opinion that the card-index is to be divided into two parts containing the biological and the hydrographical material respectively.

As to the biological part the Sub-Committee is aware of the fact that it comprises a relatively small part of the available material only and must be regarded as an experiment of a recording of biological material on index-cards. For the present it may scarcely be possible to continue the recording of biological observations on index-cards, but if such a proceeding should be taken up in future it might be of value to have the already existing index-cards available. Therefore it would be reasonable to store these cards in the archives of the Council for use in the future if the question of recording biological observations on index-cards is raised.

In the hydrographical part of the card-index are included monthly means of surface temperatures from the North Atlantic compiled from the *Danish Nautical-Meteorological Annuals*. On account of the

fact that these means of temperature are easily accessible from the said annuals there seems to be no need for their recording in the card-index. Furthermore the recording of temperature observations in the card-index may only be reasonable in special cases. The surface temperature material collected by the meteorological institutes in the different countries is of such an extent that it would be beyond the means of the Council to work it up if it was made available.

In the card-index some minor collections of surface temperature observations from different publications, for instance from the *Annalen der Hydrographie*, are also taken up. As these observations make out a minute part only of the whole card-index it scarcely seems worth while to remove them from the card-index.

Observations of temperature and salinity taken from lightvessels and from coastal stations are ordinarily not recorded in the card-index. This is in accordance with the fact, that these observations are also easily accessible from special publications. It would be an advantage, however, to have in the card-index some references to such publications.

The hydrographical part of the card-index contains, with a few exceptions, observations of temperature and salinity only. Some few chemical observations printed together with the observations of temperature and salinity in the *Bulletin Hydrographique* are included in the card-index. The following remarks on the hydrographical part of the card-index refer to observations of temperature and salinity only.

In the years 1943—45 the main part of the hydrographic index-cards were checked by officers from the Royal Danish Navy at the request of W. Nellemose. A report of the checking has been delivered by Captain A. G. Topsøe-Jensen and Engineer Edw. Andersen and is kept in the archives of the Council.

The Sub-Committee is of opinion that the checking should be carried on to comprise all the temperature and salinity material from the areas worked by the members of the Council.

The Sub-Committee has considered the question on the value of the hydrographical card-index for hydrographical and biological investigations in the future. In the first place the card-index facilitates the general view on the hydrographic material from the different areas. Furthermore it may be of value at the computing of mean values of temperatures and salinities and their anomalies in different areas. Such means and anomalies are especially of value for fishery biologists.

The material recorded in the card-index has already been used for different purposes. Extracts from it have been delivered to foreign scientists and for the work of the Service Hydrographique it has been used in the elaboration of several papers. It seems natural that the hydrographic card-index is kept in the Service Hydrographique and that this department has the responsibility of it.

The hydrographical card-index in its present state embraces the years 1902—1939 and may be regarded as rather complete for these years. A supplementing of it may, however, be desirable in some cases. Some hydrographic material from the years 1902—1939 may not yet have been published and some papers containing hydrographic material from the said years may have been overlooked. It is natural that the Service Hydrographique should be responsible for such supplementing of the hydrographic card-index.

As to the question of a continuation of the card-index with hydrographical material collected in the future some deliberations are to be made. In the first place it is a question of the economic means that may be allowed for the matter. For the years 1937—1939 the hydrographic material sent to the Service Hydrographique has first been arranged on the index-cards and these cards have been used as manuscript for the *Bulletin Hydrographique*. This proceeding involves a saving of 20—25 % of the working hours that the Service Hydrographique would spend on the *Bulletin Hydrographique* and the card-index if they were prepared independently of one another. At the Council Meeting of 1945 it was resolved that the hydrographic material sent to the Service Hydrographique should as far as possible be treated as hitherto. In accordance herewith it is found advisable that the hydrographic material from the years 1939 to 1945 or 1946 received in the Service Hydrographique is arranged on the index-cards and printed in a Bulletin comprising all these years.

This proceeding may possibly also be followed in the future, but the question of the arrangement of some parts of the Bulletin in another way than hitherto is to be considered. Notwithstanding the question of the technical arrangements the Committee is of the opinion that the hydrographic material or at any rate a part of it — especially from the North Atlantic and from the North Sea — in future should be recorded on index-cards as hitherto. It is understood that all hydrographic material in question accessible from published papers should be recorded on the index-cards. To what extent the hydrographic material from coastal regions should be recorded must be an object for special consideration.

Recommendations.

1. The card-index is to be divided into two parts containing the biological and the hydrographical material respectively.
2. The biological part of the card-index is to be stored in the archives of the Council in order that it may be available if question is raised about it in the future.
3. Means of the surface temperature from the North Atlantic recorded in the card-index from the *Danish Nautical-Meteorological Annuals* are to be cancelled.
4. The checking of the hydrographical part of the card-index is to be carried on to comprise all the temperature and salinity material from the areas worked by the members of the Council. To that

effect it is recommended that provision should be made for the necessary assistance.

5. For the years 1939—45 the recording of the observations of temperature and salinity in the card-index is to be done as hitherto.
6. For the years 1946 and the following, observations of temperature and salinity from the North Atlantic and from the North Sea are to be recorded in the card-index as hitherto. How far temperature and salinity material from other areas is to be recorded in the card-index also is provisionally left to the consideration of the Service Hydrographique, who may carry on with the work for all the areas in question or propose that it is discontinued for some areas.
7. It is recommended that the card-index shall be under the supervision of the Service Hydrographique, who shall be responsible for the carrying out of the above stated recommendations.
8. It is further recommended that the Journal of the International Council should under the heading of "Hydrographical Card-Index of the International Council, started by Captain W. Nellemose" contain references to the card-index as to its content and the delivering of copies to persons interested.

Appendix 2.

Sub-Committee for Organization of Combined Hydrographical-Biological Investigations.

Chairman: Dr. H. Blegvad.

The Committee met at 2.30 p. m. on August 13th, 1946.

I. Proceedings.

The Chairman referred to the sad loss of Dr. J. P. Jacobsen and expressed the hope that his work in this Sub-Committee would be carried on by Mr. Smed and Mr. Thomsen.

The Chairman had sent a circular letter to the members on the 1st of November, 1945, accompanied with proposals for certain investigations by Dr. Jacobsen and the Chairman. Replies had been received from Dr. Carruthers and Prof. Zeilon. These papers were discussed and commented on by the authors and the members, and the appended recommendations were accepted.

Prof. H. Pettersson proposed that the determination of salinity should be made by titration and that the work should be carried out by the Hydrographical Laboratory in Copenhagen. This was accepted by the members of the Sub-Committee.

Mr. Wimpenny drew attention to the Lowestoft-programme which included investigations from December to March of the spawning areas in the Channel region and the south-eastern part of the North Sea.

Mr. Dannevig reported on the Norwegian investigations in the Oslo Fjord.

Dr. Carruthers asked for the re-establishment of the current measurements from lightships and a resolution was accepted to that effect.

The Chairman pointed out that the principal aim of the fishery biologists of this Sub-Committee was to study the causes of the fluctuations in the stocks of commercial fishes. Therefore they wished first of all to get information of the hydrographical conditions on the spawning grounds during the development of the eggs and larvae. This would apply especially to the herring. The race problem and the influence of the hydrographical factors on the race characters being of the greatest interest for the fisheries. This was agreed upon.

Mr. Lumby made a reference to the question of co-ordinating the activities of different countries in sampling from commercial vessels and lightships and proposed a further development of this service. This proposal was approved.

Mr. Eggvin drew attention to the desirability of combining investigations on cruises with observations from fixed stations on the coasts of the North Sea and in the Faroe-Shetland Channel.

Mr. Keyser drew attention to the possibility of making hydrographical and biological observations from the vessels of the PICAO[1]) organization, and it was resolved to refer this matter to the Hydrographical Committee.

The Sub-Committee resolved that the following should be additional members: Mr. Thomsen, Mr. Lumby, Dr. Tait and Mr. Smed, the last named replacing Dr. Jacobsen as a Secretary.

Dr. Blegvad was re-elected Chairman for the ensuing year.

II. Recommendations.

It is recommended that observations at nine coastal stations now established on the west coast of Denmark, Norway and Sweden should be carried out at frequent intervals during at least one month and

[1]) "Provisional International Civil Aviation Organization".

that at the same time a cruise should be made by Scotland, Sweden and Norway in the Faroe-Shetland area, the North Sea and the south-eastern Norwegian Sea. This would be of interest to the Norwegian and Scottish fishing.

All the salinity estimations should be made by titration. It is suggested that facilities should be provided for these titrations at Copenhagen at request.

It is further recommended that certain preliminary investigations might be pursued on the problem of following a water mass, especially the development of a float, and that the standardisation of plankton methods should be made.

It is suggested that the problem of the influence of hydrographical factors upon the biometrical characters used in race work should be studied by hydrographical investigations on the spawning grounds of the food fishes, especially the herring.

It is proposed that the Hydrographical Committee be asked to encourage the re-establishment of the current measurements at lightships belonging to the different nations.

It is recommended:

(a) that the Council request the Nations concerned in the equipment of the 14 MET. ships taking part in the PICAO[1]) organization for the protection of air navigation between North America and Europe, to arrange for regular serial oceanographic and biological observations to be made in the North Atlantic according to instructions provided by the Council.

(b) that the Council arrange for these instructions to be drawn up as soon as possible, at least within three months.

The question of co-ordinating the activities of different countries in sampling from commercial vessels and lightships is considered a matter of importance by this Sub-Committee.

[1]) "Provisional International Civil Aviation Organization."

Plankton Committee.

Chairman: Professor H. H. Gran.

The Committee met on August 15th, 1946, at 11.00 a. m.

I. Proceedings.

A lecture was given by Prof. F. Bernard on Studies in Nannoplankton in the Mediterranean. The life cycle of *Coccolithus fragilis* Lohmann was described. It was shown that there are two forms with different life cycles, one in the coastal waters and the other in offshore waters.

The Chairman, Prof. H. H. Gran, then spoke on the plankton work of the International Council during the past fifty years. He outlined the main objects of research in the early days of the Council and the development of our knowledge to the present day.

A report was laid before the Committee by Dr. P. Jespersen on the present position as regards the plankton sheets. He stated that nine sheets were ready to be published and that a number of other manuscripts had now come in. It was hoped that a number of sheets could shortly be issued.

A short discussion then followed on the necessity for Standardization of methods of zooplankton collections, especially by pumps and measuring nets.

Prof. H. H. Gran then announced his wish to resign from the chairmanship of the Committee. Prof. Gran has filled the chair with great distinction for many years and the Committee accepted his resignation with much regret. The Committee were unanimous in according a hearty vote of thanks for the services he had rendered and recommended that he should be elected Chairman d'honneur.

Dr. F. S. Russell was elected Chairman for the ensuing year.

II. Recommendations.

1. The Plankton Committee recommended that Prof. Gran's account of fifty years of plankton research be published.

2. The Plankton Committee recommended that financial assistance should be given to Dr. P. Jespersen for the onerous task of editing the plankton sheets.

3. The Plankton Committee recommended that a Sub-Committee be formed to study the question of the standardization of zooplankton methods.

4. The Plankton Committee recommended that a Sub-Committee be formed to arrange for a special meeting at next year's session of the Council to discuss the rearing of fish, for which the recent work of Mr. Rollefsen has opened up wide biological possibilities.

Salmon and Trout Committee.

Chairman Prof. KNUT DAHL.

The Committee met on August 13th, 1946, at 9.30 a. m. and at 3.00 p. m.

I. Proceedings.

1) The Chairman opened the meeting and gave the representatives from the various countries a hearty welcome, with special regard to the observers from Canada and U. S. A.

2) Mr. SØMME was elected to act as secretary for the meeting.

3) The report from the last meeting in Copenhagen and the Annual Report were laid before the Committee by the Chairman.

4) A statement was given by the Secretary on the scheme for international taggings of salmon in the North Atlantic, agreed upon at the meeting in Copenhagen last year. Mr. SØMME suggested standard terms and methods to be employed by all the participants in the scheme. After a short discussion the Committee agreed that the term "tagging", according to American terminology should be employed to mean attaching a mark of some material to the fish, and the term "marking" to be used for cutting of fins. All measurements should be given in the metric system, and the length of the fish should be given as the distance between the snout and the middle rays of the caudal fin ("the fork of the tail").

It was also agreed that countries who cannot provide clean salmon in the sea for the international taggings, can participate in the scheme by tagging smolts or kelts.

5) Mr. EINAR LEA gave an account on the methods of tagging fish with the hydrostatic mark. Orders for hydrostatic marks to be employed in the international scheme should be addressed to him (Postbox 226, Bergen), also stating the text to be printed on the letters. Tools may also be provided.

6) The following countries confirmed their participation in the international salmon tagging scheme: Norway (clean salmon), Sweden (smolts and if possible clean salmon), Finland (kelts and, if possible, smolts), Denmark (smolts), Poland (smolts), France (smolts), Spain (smolts), England (if possible, clean salmon, possibly kelts), Scotland (smolts, clean fish), Éire (smolts, kelts and clean salmon), Iceland (smolts and kelts, if possible, clean fish). Mr. HIGGINS regretted that the United States will hardly be able to participate as the salmon is practically extinct. Dr. DYMOND expected that Canada would next year reply sympathetically to the invitation to participate.

7) As to the rewards for recaptured fish it was agreed upon that each country should pay for all recaptures within her boundary, disregarded in which country the fish had been tagged.

8) Reports of the research activities during the last year were given for Sweden by Dr. ROSÉN, for Poland by Dr. ZARNECKI and for France by Dr. VIBERT. It was recommended that the reports, including a paper by Dr. ZARNECKI on fish passes, should be printed in the *Journal du Conseil*.

9) Dr. G. ALM reported that a new committee for the study of migratory fish had been established in Sweden. Co-operation between this committee and the Salmon and Trout Committee is wanted.

10) Iceland's participation in the salmon tagging scheme was discussed.

11) Mr. EINAR LEA gave a lecture on the technique of tagging fish with the new hydrostatic mark.

Discussion: Messrs. DAHL, MACFARLANE and HIGGINS described tagging and marking techniques in Norway, Scotland and U. S. A. respectively.

12) The revised list of members was accepted.

13) Dr. K. DAHL was re-elected Chairman for the ensuing year, failing him Mr. S. SØMME.

II. Programme of Work.

1) The international taggings of salmon for the study of the international character of the migrations of the Atlantic salmon will commence in 1947 and last for a period of three successive years.

2) The necessary material for tagging (marks and tools) will be provided by Mr. EINAR LEA.

3) A co-operation between the Swedish Committee for the Study of Migratory Fish and the Salmon and Trout Committee should be established.

Whaling Committee.

Chairman: Dr. N. A. Mackintosh.
The Committee met on August 15th, 1946, 2.30 p. m.

I. Proceedings.

Reference was made to the meeting held in 1945 at which it was decided that the Committee should be reconstituted, and the list of members was revised.

The Chairman gave a brief summary of the activities of the whaling industry since 1939 and the present problems of international regulation. Pelagic whaling in the antarctic had ceased in 1941 and the war had thus provided an opportunity to consider whether the regulations could be improved. Mr. Dobson gave an account of the whaling conferences which had been held in London in January, 1944, and November 1945, and said that the open season had been extended to 4 months, but that protection of humpbacks was continued, and an overall limit of 16,000 blue whale units had been agreed upon. An International Whaling Conference is expected to take place shortly in Washington, when arrangements will be considered for the season of 1947—48 and thereafter. After some discussion in which Mr. Maurice and others took part, the Committee agreed that for the protection of the stock it was desirable that the limit of 16,000 units should be maintained, but noted that some adjustment of this figure might have to be considered.

Professor Ruud gave an account of recent Norwegian research on whales, and described a new method of determining the ages of whales by delicate measurements of the thickness of baleen plates. Good results were obtained for young whales, but data from older whales were more difficult to interpret. The investigations indicate that fin whales become adult after three years from birth. Some evidence of improvement in the stock of whales was to be found in an increase in average length, though the percentage of mature whales had not increased. There was evidence also of increasing numbers of young whales in the stocks. Biologists had worked in a factory ship during the season 1945—46, and arrangements were being made for inspectors to make routine observations on the ovaries of whales and to collect baleen plates in 1946—47.

The Chairman said that the Discovery Committee had continued research on whales during the war and hoped to continue such work in the future. Biologists had worked in whaling factories and further collections of ovaries had been made. Collections of blue whales' ovaries over a series of years had shown a progressive change in the age composition of the stock. In fin whales in 1945—46 there was a higher percentage of young whales and a lower percentage of old whales than at the beginning of the war. It was considered very important that ovaries and baleen plates should be obtained from any whale in which a 'long-term' mark was found. It was hoped that further whale marking could be carried out.

Dr. Mackintosh was re-elected Chairman for next year.

II. Recommendations.

1. That statistical data bearing on the condition of the Antarctic stocks of whales from year to year should continue to be collected in future whaling seasons.

2. That in addition to the Antarctic whaling areas II to V established by Hjort, Lie and Ruud, the new areas I and VI provisionally defined by Mackintosh (1942), and covering mainly the Pacific sector, should be accepted.

Statistical Committee.

Chairman: Professor Sir D'Arcy W. Thompson.
The Committee met at 4.00 p. m. on August 13th, 1946.

I. Proceedings.

1) The Bulletin Statistique for 1938, printed in 1944, was submitted and approved.

2) The Committee proceeded to discuss the material at hand for the years 1939—1945. There was much material in hand for the year 1939, which should be the subject of another annual Bulletin; but it was agreed to combine the statistics of 1940—1945 in a single Bulletin, as had been done in 1914—1918.

3) The Chairman presented new and corrected tables, prepared by Miss Hansted, of Cod and six other important fishes, for the years 1906—1938; showing the total quantities landed (a) by the several countries, and (b) from the principal areas. Miss Hansted was thanked for these important tables.

4) The Committee discussed the conversion into equivalent weights of salt-fish, fish headed and gutted at sea, and various kindred matters. A booklet of information given to Swedish Fishery Officers was shown to the Committee, with the suggestion that similar instructions should be issued in printed form in other countries.

5) The Report of a Conference on Food and Agricultural Statistics, held in London in September last, was presented to the Committee. Attention was specially called to certain conversion factors discussed by that Conference, in whose hands the matter remains for further development.

6) The question of fish used for fish-meal and manure was discussed; but for want of fuller information was remitted to next year's meeting.

7) The Committee discussed at considerable length a proposal to publish Monthly Charts of the Herring Fishery; and this matter, inasmuch as it required the co-operation of other Committees, was referred to the Consultative Committee[1]).

8) On the proposal of Dr. E. S. Russell, Sir D'Arcy Thompson was re-elected Chairman. In accepting office, Sir D'Arcy explained that Dr. Niels Rosén would henceforth take his place as Editor of the *Bulletin Statistique*.

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[1]) See Rec. 2 of the Northern North Sea Committee.

VERSION FRANÇAISE

Réunion Scientifique Spéciale.

Les Problèmes du Hareng.

Président: Dr. K. A. Andersson.
16 Août 1946 à 9 h. 30.

Les exposés suivants sont faits:

Dr. H. Wood: Le hareng du Nord-Ouest de la Mer du Nord.

M. Einar Lea: L'A.S.D.I.C. au service de la pêche.

Dr. B. Havinga lit une note de G. P. Baerends: Sur des captures inhabituelles de harengs dans la Waddenzee en Avril 1946.

Dr. K. A. Andersson: Quelques remarques sur les fluctuations dans la pêche du hareng sur la côte Ouest de Suède.

Les documents présentés et résumés seront publiés dans un volume spécial de la série des Rapports et Procès-Verbaux.

Rapport et Recommandations du Comité Consultatif.

Président: Dr. E. S. Russell.
Le Comité s'est réuni le 12 Août 1946 à 17 h. et le 16 Août à 14 h. 30.

I. Compte-rendu.

Le Président ouvre la séance et entame une discussion sur le Rapport de Progrès distribué aux membres du Comité.

Une courte allusion est faite à la déclaration de M. Dobson sur l'état présent de la question de l'exploitation exagérée des fonds de pêche discutée lors de la conférence tenue à Londres en Mars-Avril 1946.

Le Dr. K. A. Andersson propose que tous les Présidents des Comités des Secteurs établissent des programmes pour l'étude des effets des mesures proposées par cette conférence.

Le Président du Comité du Secteur de Transition dit que, pris par un travail pressant sur la réorganisation du Service des Pêches, le Gouvernement norvégien n'a pas encore pu prendre en mains le problème de la protection de *Pandalus*, *Nephrops* et *Homarus*.

Le rapport préparé par le sous-comité pour l'étude du fichier-répertoire est soumis au Comité Hydrographique (voir App. 1 du rapport de ce Comité).

Le Comité Consultatif approuve le rapport de la réunion des Experts du Hareng tenue à Aberdeen en Juin dernier[1]) et soumet la Recommandation No. 11 au Comité des Statistiques.

Le Président rapporte les difficultés rencontrées dans l'édition des publications. Il est admis que la possibilité d'imprimer en Suède sera examinée.

M. van Dijk regrette que la Hollande n'ait pu se faire représenter à la Réunion des Experts du Hareng à Aberdeen. Il suggère qu'une collaboration plus étroite soit établie désormais entre les biologistes spécialisés des différents pays; particulièrement sous la forme de programmes généraux précis établis pour les recherches biologiques dans les pays coopérants.

Le Président attire l'attention sur les programmes préparés par les différents Comités de Secteurs et invite les délégués hollandais à se joindre aux réunions de ces Comités. Il insiste spécialement sur les recherches concertées concernant l'effet de la guerre sur les stocks de poissons, signalées dans les programmes des différents Comités.

[1]) Voir ce volume, II[e] partie, pp. 8–9.

Les rapports des Comités sont discutés et regardés comme approuvés, voir les recommandations plus bas. Il est constaté avec regrets que le Professeur Gran a démissionné de son poste de Président du Comité du Plancton. Les membres souhaitent la bienvenue à son successeur Mr. F. S. Russell.

Le Dr. E. S. Russell informe l'assistance qu'il regrette de ne pouvoir continuer à présider le Comité Consultatif puisqu'il a quitté le Service des Pêcheries. Le Dr. Täning le remercie de la façon admirable dont il a conduit les affaires du Comité, ajoutant qu'on comprend tout-à-fait les raisons pour lesquelles il se retire. Pour lui succéder, il propose le Dr. R. S. Clark qui est élu à l'unanimité par acclamation.

Le Dr. Clark remercie le Comité de l'honneur qu'on lui accorde et promet de faire de son mieux pour le maintenir au même niveau.

II. Recommandations.

1. Rapports des Comités.

Les rapports des Comités sont présentés et les recommandations suivantes sont ajoutées aux recommandations particulièrement appuyées par le Comité et exposées dans des paragraphes à part.

(a) Comité du Secteur Nord-Ouest. — Insiste sur l'importance des études sur le flétan: propose la nomination de M. Árni Friðriksson comme Vice-Président du Comité.

Sous-Comité de la Baie de Faxa. — La fermeture de la Baie de Faxa pendant une période de dix années comme lieu d'expérience internationale sur l'intérêt de la fermeture de cantonnements (nursery grounds).

(b) Comité du Plateau Continental Atlantique. — Une réunion sur les méthodes d'étude de la sardine et d'autres poissons clupéidés (sauf le hareng) aura lieu en 1947 selon le programme qui sera présenté l'année prochaine devant le Comité Consultatif par M. le Gall.

(c) Comité du Nord de la Mer du Nord. — La préparation de cartes mensuelles du hareng, confiée au Dr. W. C. Hodgson.

(d) Comité du Sud de la Mer du Nord. — Insistant

sur l'importance d'une expérimentation des effets de l'emploi de mailles de tailles différentes, de divers engins et de bateaux sur la pêche des poissons de fond.

(e) Comité Hydrographique. — Il est recommandé que le fichier hydrographique (card-index) soit poursuivi; en appuyant les propositions du Sous-Comité pour l'organisation des recherches hydrographiques-biologiques combinées et en demandant au Service Hydrographique de coordonner les activités des différents pays quant aux prélèvements à faire à bord des bateaux de commerce et des bateaux feu et d'uniformiser les méthodes.

(f) Comité du Plancton. — Il est recommandé qu'une assistance financière soit donnée au Dr. P. Jespersen pour l'édition des fiches planctoniques et qu'un Sous-Comité soit formé pour étudier la question de la standardisation des méthodes d'étude du zooplancton.

(g) Comité de la Baleine. — Il est recommandé que les statistiques annuelles de la pêche à la baleine de l'Océan Antarctique continuent à être réunies et que les nouveaux secteurs I et VI provisoirement définis par Mackintosh (1942) soient ajoutés aux secteurs antarctiques II à V définis par Hjort, Lie et Ruud.

2. Réunion des Experts.

La recommandation du Comité du Secteur de Transition qu'une réunion d'experts se tienne lors de la prochaine réunion du Conseil afin d'étudier et de proposer des mesures pour la protection des stocks de *Pandalus borealis*, *Nephrops norvegicus* et *Homarus vulgaris* est adoptée. Il est suggéré que huit experts se rencontreront un jour avant la prochaine réunion du Conseil pour s'accorder sur ces méthodes.

3. Réunions Scientifiques Spéciales.

Le Comité recommande qu'une réunion scientifique spéciale se tienne lors de la prochaine réunion du Conseil pour discuter des "effets de la guerre sur les stocks des poissons comestibles" et que le Dr. R. S. Clark convoque l'assemblée dans ce but.

Le Comité recommande qu'une réunion scientifique spéciale se tienne lors de la prochaine réunion du Conseil pour discuter de "l'élevage du poisson" et que M. G. Rollefsen convoque l'assemblée dans ce but.

4. Publications.

Le Comité recommande que la note de M. G. Rollefsen sur "Le stock arcto-norvégien de morue" lue le 13 Août soit publiée aussitôt que possible.

Le Comité recommande que les notes lues à la réunion spéciale tenue le 16 Août sur les "problèmes du hareng" soient publiées aussitôt que possible par le Conseil International.

Le Comité appuie, en outre, les recommandations des différents Comités concernant la publication par le Conseil des notes suivantes: le rapport de la Baie de Faxa, une revue générale sur la morue du Groënland par M. Paul M. Hansen, l'adresse terminale du Prof. H. H. Gran au Comité du Plancton et la reprise du "Rapport Atlantique".

5. Extension du Secteur du Conseil.

Le Comité attire l'attention sur la proposition du Comité du Plateau Continental Atlantique: que ce secteur soit étendu de façon à comprendre les eaux depuis la latitude de St-Kilda jusqu'à l'Equateur et recommande son adoption.

Rapports et Programmes des Comités des Secteurs.

Comité du Secteur Nord-Est.

Président: Mr. G. Rollefsen.
Le Comité s'est réuni le 13 Août 1946 à 9 h. 30.

I. Compte-rendu.

1) M. G. Rollefsen fait un exposé sur "Le stock Arcto-Norvégien de Morues à la lumière des récentes investigations".

2) Le Rapport administratif pour 1945—46 est adopté.

3) La liste revisée des membres du Comité est approuvée.

4) Plusieurs membres expriment l'opinion que des difficultés se présentent pour le recrutement du personnel scientifique à cause des salaires inférieurs et de faibles opportunités d'avancement. A ce propos l'Angleterre se réfère à un "White Paper" concernant la Réorganisation des Services Civils Scientifiques (Cmd. 6679)[1]).

5) Il est discuté sur l'opportunité de recommander une réunion spéciale prochaine sur la morue. Il est décidé de reporter cette proposition à l'année prochaine.

6) M. G. Rollefsen est réelu Président pour l'année suivante.

[1]) Voir aussi la résolution acceptée par le Conseil, No. 20 des Agenda.

II. Programme de Travail.

1) L'Angleterre déclare qu'elle mettra son nouveau navire de recherche en service à partir de 1948. Le programme envisage de faire six voyages chaque année pour étudier les relations des conditions hydrographiques et du plancton avec les captures de morue dans la région de l'Ile aux Ours.

L'Angleterre promet de maintenir le contact avec les chercheurs Norvégiens et de coopérer aussi loin que les circonstances le permettront.

2) Le Danemark déclare qu'il ne pourra que très peu contribuer aux recherches dans le secteur, sauf pour des observations qui pourront être faites en cours de route par le bateau de recherches se rendant dans le Secteur Nord-Ouest.

3) La Norvège déclare qu'elle possèdera également dans deux ans environ un nouveau navire de recherche. Ce navire travaillera surtout en Mer du Nord et dans le Secteur Nord-Est. Les recherches seraient étendues à tous les poissons comestibles importants.

Des recherches sur le plancton avec de nouvelles méthodes d'échantillonnage seront concentrées sur les œufs, les larves et les organismes alimentaires (food organisms).

Il est insisté sur l'importance d'une collaboration nécessaire dans les recherches sur le flétan.

Comité du Secteur Nord-Ouest.

Président: Dr. Å. Vedel Tåning.
Le Comité s'est réuni le 15 Août 1946 à 9 h. 30.

I. Compte-rendu.

1) Le Président ouvre la séance. Les propositions pour deux légers remaniements au rapport du Sous-Comité de la Baie de Faxa sont distribuées et adoptées. Deux notes du Sous-Comité des Féroës, l'une du Président, l'autre de M. B. B. Rae, Aberdeen, sont présentées et adoptées sans discussion.

2) Le Président soumet au Comité le Rapport Administratif et regrette qu'il n'ait pas été possible d'effectuer plus de travail depuis la réunion du Conseil à Copenhague l'an dernier.

3) Le Président attire l'attention du Comité sur quelques-uns des nombreux problèmes à résoudre dans l'avenir. Il recommande que toutes les informations biologiques et hydrographiques sur l'influence des changements climatériques au cours du siècle soient rassemblées dans un avenir proche, ce qui éclairerait l'état actuel de nos connaissances, particulièrement pour ce qui est des fluctuations des stocks de pois-

sons. Il recommande aux membres du Comité de porter leur attention sur les nombreux instruments nouvellement inventés, tels que par exemple le bathythermographe.

4) Le Président expose ensuite les propositions du Dr. Clark sur la généralisation des recherches sur la biologie de flétan. Ce sujet, avec des considérations particulières sur la fixation d'une taille minima, est discuté par M. Devold qui présente un court rapport sur la pêche du flétan au filet en Norvège, par le Dr. Clark, M. Graham, M. Havinga, M. Friðriksson, le Prof. le Gall et le Président. Une recommandation est présentée à propos des recherches sur le flétan (Cf. V, 1).

5) Le Dr. Å. Vedel Tåning est réélu Président pour l'année suivante.

II. Programme de Recherches.

Le Président demande aux différents pays d'ébaucher les grandes lignes du programme qu'ils pourront accomplir dans le secteur l'année qui vient, spécialement en ce qui concerne les croisières et les recherches sur le flétan. Il est persuadé que les travaux habituels seront continués, ainsi qu'il l'a été proposé à la réunion d'Octobre l'an dernier. Les réponses des différents pays sont les suivants:

1) Angleterre: Aucune croisière ne peut être assurée dans ce secteur l'an prochain, mais des recherches sur le marché, spécialement sur le flétan, seront poursuivies et poussées aussi loin que possible.

2) Danemark: Une croisière sera effectuée dans le secteur par le "Dana" cet automne et une autre croisière est prévue pour le printemps prochain, en partie vers le vaste secteur du sud de l'Islande et du Groënland. Les recherches sur le flétan et d'autres espèces seront continuées, spécialement dans les eaux des Féroës aussi bien qu'au large du Groënland où M. Paul Hansen travaillera sur son nouveau bateau "Adolf Jensen".

3) Ecosse: Des expériences de marquages sur de petits flétans seraient poursuivies dans les eaux d'Ecosse et une ou plusieurs croisières effectuées, peut-être aussi dans la région des Féroës.

4) Éire: Pas de travail à la mer.

5) France: Une croisière pourrait avoir lieu l'an prochain ainsi que des études sur le flétan comprenant la recherche des lieux de ponte au large des côtes de France et au sud de l'Irlande.

6) Hollande: Aucune croisière ne pourra être effectuée mais une étude sera faite si possible sur des flétans en provenance des marchés.

7) Islande: Il est prévu qu'un navire de recherches sera mis à sa disposition l'an prochain et un travail à la mer intensif sera accompli. En outre l'Islande promet de marquer, mesurer, et déterminer l'âge des flétans.

8) Norvège: Ne travaillerait pas dans le secteur Nord-Ouest mais effectuerait des recherches sur le flétan dans le Secteur Nord-Est.

9) Suède: Pas de travail à la mer.

III. La Question des Féroës.

Une proposition du Président que la question des Féroës soit examinée l'année prochaine par les mêmes membres est approuvée à l'unanimité. Le programme de travail a été adopté à la réunion d'Octobre l'an dernier. Le travail à la mer dans la région des Féroës est encore dangereux à cause des mines.

IV. Le Sous-Comité de la Baie de Faxa.

Le Président présente un bref compte-rendu du travail de ce Sous-Comité, et demande si le Comité a des remarques à présenter à propos du rapport, des 26 notes et des recommandations. Il n'y a pas de remarques. Le Président déclare alors qu'il considère que le Sous-Comité a terminé ses travaux; le rapport est adopté à l'unanimité et transmis au Comité Consultatif.

V. Recommandations.

Il est recommandé que:

1) Le Danemark, l'Ecosse, la France, l'Islande et la Norvège soient priés d'accorder une attention spéciale à l'étude du flétan;

2) M. Paul Hansen soit prié de préparer une revue générale sur la question de la morue du Groënland avec une attention spéciale sur les modifications du stock durant ce siècle, et que des honoraires lui soient accordés pour ce travail;

3) M. Árni Friðriksson soit nommé Vice-Président du Comité et que des honoraires comme Vice-Président lui soient accordés.

4) Finalement le Comité adopte les recommandations présentées par le Sous-Comité sur la question de la Baie de Faxa. (Cf. rapport en appendice).

Sous-Comité de la Baie de Faxa.

Président: Dr. Å. Vedel Tåning.
Le Sous-Comité se réunit le 10 Août à 10 h.
Présent: les Membres et le Dr. F. S. Russell et M. M. Terrin.

I. Compte-rendu.

Le Président distribue le rapport préparé par les membres du Comité de rédaction et la note 16. Il donne un aperçu du problème et conclut qu'une fermeture expérimentale de la baie pourrait être profitable.

M. Graham insiste sur la très grande importance d'un travail opiniâtre de recherches dans les eaux d'Islande pendant la période de fermeture et le Dr. Clark attire l'attention sur la nécessité de recueillir davantage d'observations sur la biologie du flétan, non seulement dans les eaux islandaises, mais aussi sur les lieux de pêches européens où cette espèce est distribuée. Le Président et M. Friðriksson montrent que bien que la biologie de ce poisson ne nous soit pas connue en détail, nous en savons suffisamment pour conclure que la protection du jeune flétan pourrait être profitable.

Après une discussion dans laquelle tous les membres ainsi que le Dr. Russell participent, il est recommandé d'ajouter un paragraphe additionnel au plan de travail de ce rapport (expériences de marquage proposées). Il est adopté ensuite que la recommandation A. 4. soit modifiée en vue que les recherches proposées puissent commencer de suite.

Finalement, le rapport et les recommandations annexées sont adoptés et transmis au Comité du Secteur Nord-Ouest.

II. Recommandations.

Il est recommandé:

A. 1. Qu'une expérience internationale sur l'utilité de la fermeture des "nursery grounds" soit faite dans les eaux d'Islande, que dans ce but la baie de Faxa, à l'intérieur d'une ligne joignant Gardskagi à Malarrif est recommandée.

2.[1]) Dans cette aire, toute sorte de chalutage ou de pêche à la senne sera interdite; une compensation sera donnée aux pêcheries et un règlement international efficace au maximum est essentiel pour l'expérience.

3. La durée de l'expérience sera de dix années et la baie pourra rester fermée pour cinq années supplémentaires pour permettre la ratification de tout accord sur sa fermeture permanente ou son ouverture.

4. Il est essentiel, en premier lieu, que les investigations relevées à la page 22 du rapport[2]) soient mises en œuvre sans délai pour donner une base solide pour une fermeture expérimentale.

B. Que le présent rapport soit publié.

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[1]) Adopté par le Conseil sous la forme amendée suivante: "Dans cette aire toute sorte de chalutage ou de pêche à la senne sera interdite, dans quel cas un règlement international efficace au maximum est essentiel pour l'expérience".

[2]) Pendant les dix années d'observations, le travail scientifique dans la baie se ferait de deux façons:

Le premier travail scientifique aurait pour but de déterminer l'effet de la fermeture de la baie sur les pêches dans les eaux islandaises.

Les espèces intéressantes sont: le haddock, la plie, le flétan, la limande sole dont on espère un accroissement de poids appréciable dans les pêches pratiquées en dehors de la baie ce qui compensera largement la réduction des pêcheries à l'intérieur de la baie et les frais de la réglementation.

Les moyens d'évaluer ces avantages sont:

1) le marquage des plies et limandes soles de 25 cm. de long ou plus et du flétan de 30 cm. de long ou plus. Le marquage du haddock ou des petits poissons plats ne donnerait pas de résultats intéressants, étant donné le peu de chance de survie par le procédé de marquage.

2) Statistiques commerciales des pêches dans les eaux islandaises.

Le marquage pourrait montrer si la fermeture de la baie cause ou non une augmentation appréciable des migrations de la baie vers d'autres régions de pêche.

Ainsi, si une pêche régulière était exécutée chaque année dans la baie pendant le même nombre d'heures avec un engin "normalisé" et si la même proportion des poissons capturés était chaque fois marquée, le nombre de poissons repris ailleurs par les pêcheurs pourrait indiquer l'apport du poisson de la baie aux autres pêcheries.

Si le nombre de poissons repris montrait une tendance suffisante d'augmentation pendant les dix années de l'observation, la fermeture de la baie serait reconnue utile.

La question resterait pendante, à savoir si l'émigration amplifiée était suffisante pour compenser le sacrifice des pêcheries à l'intérieur de la baie, perte d'une valeur approximative de £ 300,000 par année pendant la période d'entre deux guerres.

Il est donc nécessaire d'estimer le montant de l'augmentation de l'émigration. Ceci ne pourrait être fait qu'en obtenant la proportion des captures faites en Islande provenant de la nursery de la baie de Faxa. Ce renseignement obtenu, ainsi que la quantité et la valeur des captures totales dans les eaux islandaises il serait possible d'évaluer l'émigration de la baie de Faxa.

Dans ce but, il serait nécessaire de marquer le poisson pris lors de pêches uniformes sur toutes les nurseries autour de l'Islande.

Le second travail d'information se propose d'obtenir des observations générales sur tout changement, de façon à ce qu'aucun facteur important ne soit négligé dans l'expérience.

A la réunion de Reykjavik en Juillet 1939, les membres du Sous-Comité de la Baie de Faxa présents se mirent d'accord au sujet des recherches scientifiques à exécuter pendant la fermeture de la baie. Ce programme serait exécuté par des navires de recherches ou des ba-

Comité du Plateau Continental Atlantique.

Président: M. J. le Gall.
Le Comité se réunit le mardi 13 Août 1946 à 16 h. 30.

I. Compte-rendu.

1) Le Président ouvre la séance et remercie les membres du Comité pour leurs importantes contributions aux travaux du Comité du Plateau Continental Atlantique pendant l'année écoulée.

2) Le rapport administratif est adopté.

3) Les communications suivantes sont exposées et discutées.

A. Hydrologie.

(a) P. Desbrosses: Premiers résultats de la croisière du "Président Théodore Tissier", Juillet 1946.
(b) F. S. Russell: Teneur en phosphates et en nitrates des eaux en surface et en profondeur en Baie de Plymouth[1]).
(c) R. Legendre: Température de l'eau en surface en Baie de Concarneau.
(d) Capitaine Michelet: Températures de l'eau sur les Bancs de Terre-Neuve pendant la campagne 1945 et considérations sur le rendement de la pêche suivant la température des eaux profondes.
(e) C. Francis-Bœuf: Études d'océanographie littorale, travaux sur le milieu fluvio-marin et les dépôts d'estuaire.
(f) Commandant L. Beaugé: Circulation des masses océaniques.

B. Biologie.

(g) C. F. Hickling: Étude des statistiques de la pêche du hareng au filet dérivant (Mars-Avril-Mai) et au chalut (de Juin à Septembre) à Milford Haven[1]).
(h) G. P. Farran: Résultats des observations (mensurations et âge) faites sur les pêcheries de harengs de la côte d'Irlande[1]).
(i) C. F. Hickling: Variations saisonnières du poids moyen (pour une taille donnée) de la sardine des côtes de Cornouailles. Variations saisonnières de la nourriture de cette sardine.
(k) P. Desbrosses: Variations périodiques annuelles de la moyenne vertébrale de la sardine.
(l) J. Furnestin: Note sur la biologie de l'anchois du Golfe de Gascogne.
(m) Legendre: Note sur la nourriture du germon, analyse des contenus stomacaux.
(n) G. P. Farran: Résultats des campagnes du "Muirchu" en 1938 et 1939. Distribution des œufs et des larves de maquereaux[1]).
(o) C. F. Hickling: Amélioration du rendement de la pêche du merlu[1]).
(p) C. Letaconnoux: Les merlus du Golfe et de l'entrée occidentale de la Manche en Janvier et Février 1946.
(q) C. F. Hickling: Étude du haddock du Banc de Porcupine[1]).
(r) P. Desbrosses: Le merlan de la côte française comparé aux populations du nord de l'Europe.
(s) P. Desbrosses: Dimorphisme sexuel chez quelques téléostéens de la côte atlantique française.

C. Bibliographie.

Le Président soumet à l'approbation des membres du Comité un projet de "Bibliographie" des publications se rapportant à des recherches faites dans le secteur du Comité du Plateau Continental Atlantique.

Le premier état de cette bibliographie ne rassemble que les travaux publiés en France. Le travail pourrait

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teaux de pêche loués et les croisières exécutées de la façon suivante:

"**A.** Une expérience de chalutage aurait lieu tous les trois mois dans les localités suivantes:

1. A une station territoriale déterminée et à une station au large de Engey.
2. A une station déterminée en dehors du territoire et dans les lieux fréquentés par des chalutiers à l'est de Sydra Hraun et au nord-est de Sydra Hraun.
3. Dans un lieu juste à la sortie de la baie: ex. dans le Midnessjór.

Le matériel serait utilisé pour une étude comparative des variations de la densité du stock des espèces importantes de poissons comestibles (plie, limande sole, flétan, haddock, morue) des recherches sur l'âge et la croissance en fonction de l'âge seraient également faites.

En outre, la migration saisonnière du flétan, de la plie et de la morue serait examinée et aussi, s'il est possible, l'immigration des larves pélagiques en particulier des stades post-larvaires du flétan voisins des stades démersaux.

B. Des échantillons de profondeur seraient pris aux lieux des expériences de chalutage et aussi sur trois lignes comprenant dix stations chacune traversant du sud au nord la zone étudiée. Ces échantillons de profondeur seraient prélevés une fois par an.

C. Des observations hydrographiques seraient faites sur les lieux de chalutage et aussi loin que possible chaque mois sur les sections habituelles au large de Skagi et d'Akranes.

D. Des pêches aux cordes et aux lignes à main à l'intérieur de la baie seraient mesurées et les statistiques concernant ces pêches seraient rassemblées."

[1]) Un résumé va paraître dans les Ann. Biol. Vol. II.

être complété utilement par les travaux étrangers. Les auteurs étant invités à signaler leurs travaux au Président du Comité en y joignant un bref résumé.

Cette bibliographie serait jointe au rapport du Comité.

Cette proposition est agréée.

4) Extension méridionale de l'activité du Comité du Plateau Continental Atlantique. La création de laboratoires de biologie marine à Casablanca, Dakar (Gorée), celle très proche de stations biologiques à Conakry (Guinée française) et Abidjan (côte d'Ivoire), le développement de la pêche maritime sur la côte occidentale d'Afrique vont permettre le développement rapide des recherches océanographiques et biologiques sur la côte d'Afrique occidentale.

Le Comité approuve la proposition du Président tendant à ce que le Comité du Plateau Continental Atlantique étende désormais son domaine du parallèle de St-Kilda, au nord, jusqu'à l'Equateur.

5) Reprise de la Publication du "Rapport Atlantique". Le Comité exprime le désir de voir reprendre la publication du "Rapport Atlantique", estimant que cette publication ne fera pas double emploi avec les "Annales Biologiques" qui ne rapportent que les résultats bruts des observations faites dans les différents secteurs du Conseil International, tandis que dans le "Rapport Atlantique" seront publiés les rapports scientifiques établis après interprétation des résultats des travaux effectués dans le secteur du Comité du Plateau Continental Atlantique.

6) M. Jean le Gall est réélu Président du Comité.

II. Programme de travail.

Croisières. Pour entreprendre en collaboration certaines recherches hydrologiques, océanographiques ou biologiques, la France et le Danemark se communiqueront leurs programmes de croisière dès que leurs navires de recherche seront en état de reprendre la mer.

Biologie. Les recherches sur la biologie des espèces suivantes hareng, sardine, sprat, anchois, germon, maquereau, chinchard, merlan, merlu, haddock, morue, lançon, homard et langoustine seront poursuivies suivant le programme précédemment établi.

III. Recommandations.

Le Comité recommande que le secteur d'activité du Comité du Plateau Continental soit étendu désormais du parallèle de St-Kilda, au nord, jusqu'à l'Equateur.

Le Comité recommande la reprise de la publication du "Rapport Atlantique".

Le Comité recommande:

a) qu'une réunion des experts de la sardine soit tenue dans le courant de l'année prochaine en France (Biarritz ou Quimper).

b) que le programme de cette réunion d'experts ne soit pas uniquement limité à la biologie de la sardine, mais étendu à celle des autres clupéidés (sprat, anchois, sardinelle), hareng excepté.

Comité du Nord de la Mer du Nord.

Président: Dr. R. S. Clark.

Le Comité s'est réuni à 9 h. 30 le 15 Août 1946.

I. Compte-rendu.

Après avoir souhaité la bienvenue aux membres du Comité, le Président fait connaître un changement dans ce Comité: le Dr. B. Havinga représentant la Hollande à la place de M. van Riel.

Le Président passe en revue le rapport du progrès réalisé en 1945, dans ce volume, 2ème partie, et les Ann. Biol. Vol. II et se réfère particulièrement à la prédominance de la classe 1943 dans la population de haddocks, à la proportion élevée de harengs de 3 ans ainsi qu'aux résultats d'une expérience de transplantation de plies faite en collaboration avec les collègues du Sud de la Mer du Nord. Il est fait également allusion aux contributions du Dr. Aage J. C. Jensen sur les harengs danois et du Dr. B. B. Rae sur la limande sole.

Il est convenu que la circulation des documents confidentiels ainsi qu'il l'a été recommandé lors de la réunion des experts du hareng en Juin 1946 à Aberdeen, sera arrangée de façon privée entre les experts.

Le Dr. J. B. Tait explique les grandes lignes des futures recherches hydrographiques dans les secteurs du Nord de la Mer du Nord et du Chenal Féroë-Shetland, établies sur la base de nos connaissances déduites des investigations sur les courants faites avec des bouteilles dérivantes; études hydrodynamiques du Chenal Féroë-Shetland et distribution des températures et salinités particulièrement dans les petites régions importantes pour la pêche telles les Fladen et les frayères de harengs de la côte écossaise.

Le Dr. H. Wood dans une revue brève des problèmes sur le hareng insiste sur l'importance des recherches sur les races.

Le Dr. R. S. Clark donne un bref compte-rendu

des opérations effectuées par le navire de recherches écossais sur les effets comparatifs des mailles de sac de chalut de 70 mm. et de 80 mm. sur le stock de haddocks. Il avait été suggéré qu'une courte publication de cette communication serait préparée et publiée par le Conseil. Les résultats montrent que bien que les plus grandes mailles laissent s'échapper plus d'haddocks immatures une nouvelle augmentation de la maille semble désirable pour permettre à un plus grand nombre de ces petits poissons de moins de 10 pouces de long (22.5 cm.) d'éviter la capture.

Le Dr. R. S. Clark est réélu Président à l'unanimité.

II. Programme de travail.

Le Président souligne l'importance d'une collaboration totale entre les nations participantes sur le travail pratique des recherches sur la pêche dans le secteur du Nord de la Mer du Nord. Pour faciliter une telle coopération, il est convenu que des copies des programmes des croisières projetées des bateaux de recherches travaillant dans le secteur seront distribuées à l'avance à tous les membres du Comité.

Les croisières pour l'année 1946 du bateau de recherches écossais "Explorer" sont esquissées. A côté des études hydrographiques et planctoniques leur objet principal sera: a) l'analyse des stocks de poissons, et b) expérience des mailles de filets avec mailles de 70 à 120 mm. en gradation successive de 10 mm.

La coopération suivante pendant l'année est envisagée:

Angleterre collaborera avec l'Ecosse en faisant des sections hydrographiques à bord des paquebots traversant la Mer du Nord.

Danemark. Chalutage du hareng, travail hydrographique et plancton par le bateau de recherches "Dana" à l'aller et au retour d'Islande.

France. Mensurations de poissons et collection d'écailles.

Norvège complètera les recherches écossaises sur le hareng par des opérations dans les parties du secteur nord non visitées par le bateau de recherches écossais. La coopération hydrographique est également assurée.

Suède. Des recherches sur le hareng seront entreprises dans le nord-ouest de la Mer du Nord en Septembre 1946.

III. Recommandations.

Il est recommandé:

1) que "l'Effet de la guerre sur les stocks de poissons comestibles commerciaux" fasse l'objet d'une réunion spéciale lors de la prochaine réunion du Conseil à Copenhague en 1947.

2) Que douze cartes soient préparées montrant la distribution mensuelle des harengs et de leur qualité et que le Dr. W. C. Hodgson collecte des données indispensables près des différents pays intéressés.

Comité du Sud de la Mer du Nord.

Président: Mr. R. S. Wimpenny.

Le Comité s'est réuni à 14 h. 30 le 14 Août 1946.

I. Compte-rendu.

Le Président donne un bref résumé des observations scientifiques concernant la zone du Sud de la Mer du Nord pour l'année 1945. Il souligne que les conditions rencontrées après la seconde guerre mondiale se sont plus particulièrement fait sentir dans le Sud de la Mer du Nord et que le Comité est spécialement responsable de fournir les informations requises par le Comité Consultatif permanent ("Standing Advisory Committee") institué par la Conférence de Londres en vue de rechercher le meilleur moyen de prévenir une pêche excessive.

Le Dr. Täning lit un court rapport sur les changements intervenus au cours de la guerre dans la densité de la population et la croissance des jeunes plies sur les nurseries de la Waddensea. Il montre qu'il y eut une augmentation générale de la densité de la population et que de 1940 à 1943 il y eut une diminution de la moyenne de la taille des plies des groupes I et II.

Le Dr. Jensen fait part de l'augmentation des captures des plies de la Mer du Nord débarquées à Esbjerg pendant la guerre et montre qu'il y eut une légère augmentation des tailles.

Le Dr. Havinga lit un rapport sur la "back-calculation" de l'âge des plies prises au large de la côte hollandaise. Le travail a été établi en collaboration avec le Dr. Baerends et montre que la croissance des différentes classes annuelles a eu une tendance à augmenter pendant la guerre.

Une communication du Chef de la Division des Sciences Naturelles de l'U.N.E.S.C.O. au Secrétaire du Conseil International, ayant trait à la politique future et les rapports du Conseil International est également enregistrée. Il fut en outre mentionné que Lt.-Cdr. Lumby et le Dr. J. N. Carruthers attirent l'attention du Comité sur l'existence de documents inédits se rapportant à des observations faites à bord des bateaux feu pendant la période précédant immédiatement la guerre et la première partie de cette guerre. L'attention des membres fut également attirée sur l'existence d'une traduction d'un rapport

allemand concernant la pêche des cotres d'après-guerre de Hambourg.

Mr. R. S. Wimpenny est réélu Président pour l'année prochaine.

II. Programme de travail.

Angleterre: Le marquage des poissons de chalut dans les secteurs où la pêche est constante et intense sera poursuivi à raison de 50.000 environ par an à bord du chalutier à moteur "Platessa". Le nouveau chalutier de l'amirauté: "Sir Lancelot" sera équipé pour travailler en Octobre. Des croisières seront entreprises en Octobre et Novembre pour prospecter la zone à diatomées des fonds harenguiers, côte est d'Angleterre et de Décembre à Février pour délimiter les principales frayères de la plie. D'autres croisières auront pour but de déterminer l'efficacité et les effets de différents engins, d'effectuer les opérations mensuelles sur la ligne Flamborough et les autres stations. Des mensurations sur les marchés des poissons démersaux et pélagiques seront poursuivies et la répartition courante des harengs des Shields et East Anglian sera précisée à l'aide des nouvelles méthodes et des appareils du M.F.V. "Onaway".

Belgique: Le travail de M. Gilis sur la pêche du hareng guai de la côte belge sera poursuivi et les investigations seront étendues aux Fladen et comporteront des pêches au chalut expérimentales.

Danemark: Les investigations dans la "Waddensea" seront poursuivies et les opérations usuelles de mensurations sur le marché de la plie de la Mer du Nord seront effectuées, particulièrement dans le secteur d'Esbjerg. Des expériences de marquage seront effectuées dans la zone de "Horns Reef" et dans la partie plus centrale de la Mer du Nord. Si la mer est débarrassée des mines, des croisières d'ordre général seront entreprises dans la zone du Comité par le "Dana".

Ecosse: Un nouveau drifter à moteur, pour le hareng, sera mis en service durant l'année et sera utilisé en collaboration avec l'Angleterre. Une croisière générale sera effectuée dans la zone du Dogger en automne.

France: Les recherches habituelles sur le hareng de la Manche et de la Mer du Nord seront poursuivies comme par le passé.

Hollande: Un recensement de l'âge de la plie sera effectué à l'aide de la méthode de "back-calculation" et une attention spéciale sera apportée à l'évaluation de la densité de la population de toutes les espèces de poissons démersaux apparaissant sur les fonds de pêche.

Pologne: Aucun travail ne sera vraisemblablement entrepris dans le secteur du Comité au cours de l'année.

III. Recommandation.

Il est recommandé que tous les efforts soient faits pour fournir des renseignements quant à l'efficacité et l'effet de l'emploi de filets de différentes tailles de maille selon différents procédés et divers types de bateaux pêchant des poissons démersaux. Un plan détaillé en vue de comparer le pouvoir de pêche des bateaux de différents pays sera établi par correspondance par les membres intéressés.

Comité du Secteur de Transition.

Président: Dr. E. M. Poulsen.

Le Comité s'est réuni le 14 Août 1946 à 9 h. 30.

I. Compte-rendu.

1) Communication est faite sur le travail effectué par les différents pays. Le problème de la protection du stock de homards, de langoustines et de crevettes de mer profonde est discuté.

2) Les communications suivantes sont faites et discutées:

A. Molander: Les anneaux d'hiver des écailles de sprat. — La formation des anneaux dans les otolithes de la plie.

A. Dannevig: La riche classe annuelle 1938 de morues dans le Skagerak.

H. Höglund: L'effet des vagues sur la mortalité des œufs planctoniques de poissons.

Aa. J. C. Jensen: Mensurations danoises sur les marchés.

Aa. J. C. Jensen: Distribution des jeunes harengs de diverses races.

E. M. Poulsen: Recherches raciales sur le sprat dans les eaux danoises.

3) Le Dr. E. M. Poulsen est élu Président pour l'année suivante.

II. Programme de travail.

Comme il est encore impossible de savoir à quel point les effets consécutifs de la guerre entraveront les travaux de recherche à la mer, un programme plus détaillé ne peut être donné. Ainsi, le programme arrêté à la réunion d'Octobre 1945 reste valable pour l'année prochaine avec, cependant, les additions suivantes:

1) Les effets des mesures proposées par "l'Over-

fishing Conference" de Londres seront suivis par la collation des statistiques ainsi que par des mensurations sur les marchés et des expériences de pêche.

2) La mortalité des œufs pélagiques de poissons sera étudiée dans la nature et expérimentalement.

3) La formation des zones de croissance dans les otolithes sera étudiée dans la nature et expérimentalement.

III. Recommandation.

Le Comité recommande qu'une réunion d'experts soit tenue en liaison avec la prochaine réunion du Conseil pour considérer et proposer au point de vue biologique les mesures à prendre pour la protection du stock de *Pandalus borealis*, *Nephrops norvegicus* et *Homarus vulgaris*.

Comité de la Baltique.

Président: Dr. K. A. Andersson.
Le Comité s'est réuni le 13 Août 1946 à 14 h. 30.

I. Compte-rendu.

1) Le Président ouvre la séance et souhaite la bienvenue à Stockholm aux membres du Comité.

2) Les exposés suivants sont faits et discutés:

(a) Professor Kurt Buch: Recherches sur la production de la vie dans la Baltique. Il propose un vaste programme de recherches sur ces questions.
(b) Dr. Stina Gripenberg lit une note du Dr. Ilmo Hela sur le maquereau sur la côte sud de Finlande en Automne 1936.
(c) Dr. H. Alander: Rapport sur les recherches sur le hareng.
(d) Dr. W. Cieglewicz: Études comparatives sur les harengs de fraie de printemps et d'automne dans le Golfe de Danzig[1]).
(e) Dr. H. Alander: Rapport sur les recherches sur la morue.
(f) Dr. M. Bogucki: La pêche de la morue en Baie de Danzig en 1945—1946.
(g) Dr. M. Bogucki lit une note du Dr. Z. Mulicki: La composition des captures commerciales de flet dans la Baie de Danzig.

3) Le Dr. K. A. Andersson est réélu Président pour l'année suivante.

II. Programme de travail.

Le travail futur comprendra principalement:

1) Continuation des recherches sur la morue et le hareng mentionnées dans le programme de 1945.

2) Des recherches sur le sprat, particulièrement sur ses migrations seront entreprises.

3) Les recherches sur les poissons plats (plie, flet et limande) seront continuées en vue de considérer, lors de la prochaine réunion, si les conditions existantes n'appellent pas de modifications de la Convention du Sud de la Baltique actuellement en vigueur.

4) Les représentants de chacun des pays intéressés se documenteront en vue de considérer si une taille marchande minimum internationale ne devra pas être appliquée pour le saumon en Mer Baltique.

5) Le problème concernant la production de la vie dans la Baltique devra être pris en considération.

Dans ce but les recherches suivantes devront être poursuivies aussi loin que possible.

(a) Dosages réguliers des phosphates et de l'azote à différentes profondeurs pendant une période déterminée (un an si possible) à des stations fixes, parallèlement avec des dosages quantitatifs de plancton.
(b) Recherches de laboratoire sur le métabolisme total de certaines formes principales d'algues (diatomées) sous différentes conditions de lumière, de température, de sels nutritifs. La vitesse moyenne de renouvellement demande particulièrement à être déterminée.
(c) Déterminations de la production totale de phytoplancton selon la méthode Krogh-Lange si elle peut être appliquée ainsi que par la détermination de la consommation d'acide carbonique par dosages de pH et des bases en excès.
(d) Déterminations photoélectriques de l'absorption de la lumière à différentes profondeurs.
(e) La bactériologie de la Baltique.
(f) Dosages du phosphore dans les sédiments et dans les apports d'eau douce.
(g) Recherches de laboratoire sur l'adsorption des ions des colloïdes de l'eau.

[1]) Un résumé va paraître dans les Ann. Biol., Vol. II.

Rapports et Programmes des autres Comités.

Comité Hydrographique.

Président: Le Professeur Martin Knudsen.
Le Comité s'est réuni à 2 h. 30 les 12, 14 et 15 Août 1946.

I. Compte-rendu.

Le Président rend hommage à la mémoire du Dr. J. P. Jacobsen, Hydrographe du Bureau, récemment disparu. Le poste devenant vacant, la recommandation No. 1 est faite.

Le Président annonce que M. Keyser (Hollande) et l'Amiral Dyèvre (France) ont été nommés membres du Comité.

Un débat s'élève au sujet de la présentation du prochain numéro du Bulletin Hydrographique. La recommandation 2 est faite.

Un rapport du Sous-Comité (nommé par le Comité Consultatif) pour examiner le Fichier du Conseil est déposé devant le Comité (App. 1). L'importance de ce fichier est soulignée. La recommandation 3 est faite.

Un rapport du Sous-Comité (nommé par le Comité Consultatif) sur l'Organisation des Recherches Hydrographiques et Biologiques combinées est déposé devant le Comité. La recommandation contenue dans ce rapport est appuyée par le Comité (Rec. 4).

Pour son exécution, il est décidé que le Secrétaire Général correspondra avec les membres du Sous-Comité. Il est trouvé désirable de faire une réunion des trois membres scandinaves du Sous-Comité; des crédits pour une telle réunion seront demandés.

A propos de ces recherches, le Professeur Zeilon fait les remarques suivantes:

"Je pense que le mieux serait d'organiser aussitôt que possible un court travail provisoire d'orientation.

1) Je suggérerais qu'avant de s'orienter dans les travaux d'hydrographie, il soit fait des observations suivies et coordonnées pendant deux semaines ou mieux un mois au minimum, à des stations côtières fixes d'abord et au premier plan au Danemark, en Grande-Bretagne, en Norvège et en Suède. Il serait spécialement important de choisir les stations qui permettraient de juger de la situation hydrographique dans le secteur Ecosse-Norvège ainsi que dans la Manche. Le plus important est que ces observations soient faites d'une manière suivie, fréquemment et en même temps aux différentes stations.

2) En corrélation avec l'orientation hydrographique et biologique devraient être organisées des croisières avec des observations hydrologiques concommittantes au centre de la Mer du Nord.

En rapport avec le problème hydrographique (2) devraient être confrontés des échantillons pris au hasard dans différentes régions de la Mer du Nord avec ceux prélevés par les stations côtières (1). Il est estimé que la collation de (1) et (2) permettrait de déterminer la corrélation possible entre les résultats obtenus sur la côte et ceux obtenus en mer.

Cette comparaison servirait directement pour établir les méthodes mathématiques qui seraient les meilleures pour résoudre le problème. Comme un calcul rapide doit être une condition primordiale pour un futur service de renseignements hydrographico-biologiques, il faut envisager l'emploi d'une machine à calcul spéciale.

Je pense que j'ai suggéré ici quelques-unes des questions qui du point de vue hydrographique peuvent être mises en avant dans les discussions du Sous-Comité".

Le Lt.-Cdr. Lumby lit une proposition au sujet des prélèvements d'eau à bord des navires de commerce. La recommandation 5 est faite.

Le Dr. Carruthers rappelle qu'il a envoyé d'Allemagne deux communications au Conseil dont la première est un prospectus des trois volumes du livre du Professeur Defant. Ce prospectus a été mis en circulation parmi les membres du Conseil invités à donner leur opinion. Le Dr. Carruthers a eu depuis des nouvelles du Professeur Defant et, dans une lettre du 27 Mars 1946 d'Innsbruck, le Professeur Defant déclarait que la firme viennoise Julius Springer serait disposée à imprimer ce traité: "Si les conditions se montraient plus favorables". La lettre vient de l'adresse actuelle de l'auteur: Institut für Meteorologie und Geophysik der Universität, Innsbruck, Schop Strasse 41.

Le Dr. Carruthers précise que l'impression du livre ne serait pas une tâche aisée et le Professeur Pettersson demande s'il ne serait pas bon que l'on fasse savoir au Professeur Defant que le Comité manifeste beaucoup d'intérêt pour son livre et que de nombreuses personnes prendraient l'engagement de l'acheter lors de sa publication. Celà pourrait beaucoup aider le Professeur Defant vis-à-vis de ses éditeurs.

Le Dr. Carruthers trouve qu'il conviendrait d'adresser une lettre dans ce sens au Professeur Defant.

Le Dr. CARRUTHERS interrogé par le Président lui demandant s'il pourrait faire un rapport sur l'état des affaires en Allemagne, déclare qu'il a apporté certaines notes qu'il dépose devant le Comité à l'intention des membres intéressés. Une de ces notes est un rapport donnant un bref aperçu de ce que les océanographes allemands ont fait durant ces dix dernières années. Un autre document comporte de brefs résumés de 25 notes inédites récemment préparées par les Allemands (depuis la fin de la guerre). Une autre note décrit un essai récent d'une méthode de titration semi-automatique.

En plus de ces informations concernant l'Allemagne, le Dr. CARRUTHERS expose deux autres notes donnant les titres de nombreuses et récentes brochures japonaises sur l'océanographie et la biologie marine.

Les exposés suivants sont faits aux réunions:

HANS PETTERSSON: Une expédition suédoise en mer profonde.

BÖRGE KULLENBERG: Echantillonnage en grandes profondeurs.

O. NYBELIN: Quelques problèmes biologiques des mers profondes.

NIELS G. JOHNSON: Un instrument pour mesurer la transparence et la clarté de la mer.

JENS EGGVIN: Pronostics au sujet de la situation océanographique dans les eaux norvégiennes et quelques résultats pratiques.

EILERT THEISEN: Correction des températures de fond (deep sea) et un moyen commode de faire la correction des cartes.

Le Professeur KNUDSEN est réelu Président pour l'année suivante.

II. Recommandations.

1) Le Comité Hydrographique propose que le poste d'Hydrographe du Conseil vacant par suite de la mort du Dr. JACOBSEN soit occupé par Magister JENS SMED. Vu la responsabilité accrue, son salaire devra être augmenté convenablement.

2) Il est recommandé qu'une publication du Bulletin Hydrographique (comprenant le matériel hydrographique non publié des années 1940—45, éventuellement 1946, puis un appendice contenant le matériel non publié des années précédentes et, si possible, les observations faites au N.W. de l'Atlantique) soit rédigée et publiée par le Service Hydrographique continuant ainsi la série des anciens bulletins.

3) Il est recommandé que les propositions du Sous-Comité pour l'Examen du Fichier hydrographique-biologique du Conseil soient suivies (voir app. 1).

4) Le Comité recommande que les décisions du Sous-Comité sur l'Organisation des Recherches combinées d'Hydrographie et de Biologie soient adoptées par le Conseil (voir app. 2, II).

5) Il est recommandé que le Service Hydrographique soit demandé de coordonner les activités des différents pays en ce qui concerne les prélèvements d'échantillons par les bateaux de commerce et les bateaux feu de façon à couvrir ainsi la plus grande étendue des mers intéressant le Conseil et pour systématiser les méthodes.

Appendice 1.

Sous-Comité pour l'Examen du Fichier hydrographique-biologique du Conseil.

Rapport au Comité Consulatif.

Le Sous-Comité a été constitué lors de la réunion du Conseil en 1945. Il est formé de MM. H. BLEGVAD, MARTIN KNUDSEN (en son absence J. P. JACOBSEN) et Å. VEDEL TÅNING.

Le sous-comité a examiné la question et établi le rapport suivant:

Le fichier dans sa forme actuelle a été préparé à l'initiative du feu Secrétaire Administratif, le Capitaine W. NELLEMOSE (cf. le rapport préparé par J. SMED dans Rapp. et Proc.-Verb. Vol. No. 116 p. 17).

En premier lieu, le Sous-Comité est d'avis de diviser le fichier en deux parties contenant respectivement, l'une les documents biologiques, l'autre les documents hydrographiques. Pour la partie biologique, le Sous-Comité a conscience du fait qu'elle comprend seulement une faible partie des documents disponibles et que l'on doit considérer cette collation comme une expérience des renseignements biologiques sur des fiches. A l'heure actuelle, il est difficilement possible de continuer la collation de documents biologiques sur des fiches, mais si un tel procédé devait être adopté dans l'avenir, il serait intéressant d'avoir les fiches déjà existantes à sa disposition. Par suite, il serait raisonnable de conserver ces fiches dans les archives du Conseil, afin que l'on puisse s'en servir à l'avenir si la question du collationnement des observations biologiques sur des fiches revenait à l'ordre du jour.

Dans la partie hydrographique du fichier, sont comprises les moyennes mensuelles de températures superficielles dans l'Atlantique Nord prises dans les Annuaires Météorologiques et Nautiques Danois. Du fait que ces températures moyennes sont faciles à obtenir dans les annuaires précités, il ne semble pas

utile de les noter dans les fiches. De plus, le groupement d'observations de températures dans le fichier peut seulement se justifier dans des cas spéciaux. Les documents sur les températures superficielles recueillis par les instituts météorologiques des différents pays sont tellement étendus qu'il serait au-delà des moyens du Conseil de les travailler s'ils étaient mis à sa disposition.

Dans le fichier hydrographique, quelques collections moins importantes d'observations de températures de surface provenant de différentes publications, comme par exemple les *Annalen der Hydrographie*, sont aussi relevées. Comme ces observations forment seulement une part minime de tout le fichier, il apparaît difficile de les en retirer.

Des observations de température et de salinité relevées par les bateaux feu et les stations côtières ne sont pas notées ordinairement dans le fichier. Ceci s'accorde avec le fait que l'on peut obtenir facilement ces observations dans des revues spéciales. Il serait avantageux cependant d'avoir dans le fichier quelques références sur ces publications.

La partie hydrographique du fichier contient seulement, sauf quelques exceptions, des observations de température et de salinité. Quelques observations chimiques relevées avec les observations de température et salinité dans le *Bulletin Hydrographique* y sont incluses. Les remarques suivantes sur la partie hydrographique du répertoire (fichier) se refèrent seulement à des observations de température et de salinité.

Pendant les années 1943—45, la partie principale du fichier hydrographique fut contrôlée à la requête de W. Nellemose par des officiers de la Marine Royale Danoise. Un rapport de contrôle a été délivré par le Capitaine A. G. Topsøe-Jensen et l'ingénieur Edw. Andersen et est gardé dans les archives du Conseil.

Le Sous-Comité pense que ces corrections sont à poursuivre et doivent s'étendre à toutes les températures et salinités des secteurs étudiés par les membres du Conseil.

Le Sous-Comité a examiné la question de la valeur du répertoire pour les recherches hydrographiques et biologiques dans l'avenir. En premier lieu, le répertoire donne une vue générale sur les documents hydrographiques des différents secteurs. De plus, il peut avoir de la valeur pour l'établissement de moyennes de températures et salinités et de leurs anomalies dans les différents secteurs. De telles moyennes et anomalies ont surtout de la valeur pour les biologistes de la pêche.

Les documents relevés dans le répertoire à fiches ont été utilisés pour différents buts. Des extraits ont été remis à des savants étrangers et ont été utilisés par le Service Hydrographique pour l'élaboration de plusieurs notes. Il semble naturel que le fichier hydrographique soit établi par le Service Hydrographique et que ce département en ait la responsabilité.

Ce fichier-répertoire hydrographique, dans sa forme actuelle, embrasse les années 1902—1939 et peut être considéré comme assez complet pour ces années. Un supplément pourrait être cependant désiré dans quelques cas. Cependant, quelques documents hydrographiques des années 1902—1939 ne sont peut-être pas encore publiés et quelques documents contenant des renseignements hydrographiques des années précédentes peuvent être supprimés. Il est naturel que le Service Hydrographique prenne soin de ces suppléments du fichier-répertoire hydrographique.

Quant à la question de la continuation de ce répertoire avec des renseignements hydrographiques qui pourraient être ultérieurement recueillis, la discussion reste ouverte. En premier lieu, c'est une question de moyens économiques à mettre à disposition pour cette matière. Pendant les années 1937—1939, les renseignements hydrographiques envoyés au Service Hydrographique ont été d'abord portés sur des fiches et ces fiches ont été utilisées comme manuscrits pour le *Bulletin Hydrographique*. Ce procédé permet une économie de 20—25 % des heures de travail qui, dans le Service Hydrographique, seraient consacrées au *Bulletin Hydrographique* et au fichier-répertoire s'ils étaient préparés indépendamment l'un de l'autre. A la réunion du Conseil en 1945, il a été décidé que les renseignements hydrographiques envoyés au Service Hydrographique seraient traités autant que possible comme ils l'avaient été jusqu'à présent. En accord avec ceci, il est prudent que les renseignements hydrographiques des années 1939 à 1945 ou 1946 reçus par le Service Hydrographique soient inscrits sur les fiches et imprimés dans un Bulletin comprenant toutes ces années.

Ce procédé peut être suivi dans l'avenir; mais la question d'une nouvelle disposition de certaines parties du Bulletin doit être considérée. Nonobstant la question des accommodements techniques, le Comité est favorable à ce que les documents hydrographiques, ou en tout cas une partie de ceux-ci, principalement ceux du Nord de l'Atlantique et de la Mer du Nord, continuent à être inscrits dans l'avenir sur des fiches comme présentement. Il est entendu que tous les documents hydrographiques qui pourraient être trouvés dans les publications seront relevés sur des fiches. La question de savoir jusqu'à quel point les données hydrographiques de la zone côtière devront être relevées fera l'objet d'un nouvel examen.

Recommandations.

1. Le fichier-répertoire est à diviser en deux parties, renfermant respectivement le matériel biologique et hydrographique.
2. La partie biologique du répertoire sera gardée dans les archives du Conseil afin qu'elle soit disponible si la question vient à être agitée dans l'avenir.
3. Les moyennes de températures de surface de l'Atlantique Nord relevées dans les fiches des Annuaires Météorologiques et Nautiques Danois doivent être supprimées.
4. La correction de la partie hydrographique du fichier-répertoire doit être continuée pour comprendre désormais tous les documents de tempé-

rature et salinité des secteurs étudiés par les membres du Conseil. A cet effet, il est recommandé de pourvoir à l'assistance matérielle nécessaire.

5. Pour les années 1939—45, le relevé des observations de température et salinité dans le fichier-répertoire sera poursuivi comme présentement.
6. Pour les années 1946 et suivantes, les observations de température et salinité de l'Atlantique Nord et de la Mer du Nord seront relevées dans le fichier-répertoire comme présentement. La question si de telles observations provenant d'autres secteurs seront relevées dans le répertoire est provisoirement remise à la décision du Service Hydrographique qui peut ou continuer le travail dans tous les secteurs en question ou proposer qu'il soit abandonné dans certains secteurs.
7. Il est recommandé que le fichier-répertoire soit sous la surveillance du Service Hydrographique qui prendra soin de l'exécution des recommandations ci-dessus établies.
8. Il est recommandé, de plus, que le Journal du Conseil International prenne sous le titre de "Hydrographical Card Index of the International Council (Fichier Hydrographique du Conseil International) commencé par le Capitaine W. Nellemose", les références des fiches et de leur contenu et leur délivrance aux personnes intéressées.

Appendice 2.

Sous-Comité pour l'Organisation des Recherches Hydrographiques et Biologiques Combinées.

Président: Dr. H. Blegvad.

Le Sous-Comité se réunit à 2 h. 30 p. m. le 13 Août 1946.

I. Compte-rendu.

Le Président fait allusion à la mort du Dr. J. P. Jacobsen et exprime l'espoir que son travail dans ce Sous-Comité soit poursuivi par Mr. Smed et Mr. Thomsen.

Le 1er Novembre 1945, le Président a adressé aux membres du Comité une circulaire accompagnée de propositions faites pour certaines recherches par le Président et le Dr. Jacobsen. Des réponses ont été reçues du Dr. Carruthers et du Professeur Zeilon. Ces réponses sont commentées par les auteurs et discutées par les membres du Comité. Les recommandations annexées sont adoptées.

Le Prof. H. Pettersson propose que la détermination de la salinité soit faite par titrage et que ce travail soit continué par le laboratoire hydrographique à Copenhague, ce qui est accepté par les membres du Sous-Comité.

M. Wimpenny attire l'attention sur le programme de Lowestoft qui comprend des recherches de Décembre à Mai sur les aires de ponte dans le district de la Manche et la partie Sud-Est de la Mer du Nord.

M. Dannevig fait un rapport sur les investigations norvégiennes dans le fjord d'Oslo.

Dr. Carruthers demande le rétablissement des mesures de courants à bord de bateaux feu; une résolution est acceptée à cet effet.

Le Président indique que le principal but des biologistes de la pêche, membres de ce Sous-Comité, est d'étudier les causes des fluctuations dans le stock des poissons de taille marchande. Par suite, ils désirent tout d'abord obtenir des informations sur les conditions hydrographiques des aires de reproduction pendant le développement des œufs et des larves, ceci pour le hareng, particulièrement. Le problème racial et l'influence des facteurs hydrographiques sur les caractères raciaux est du plus grand intérêt pour la pêche. Le Sous-Comité approuve.

M. Lumby fait allusion à la coordination des activités des différents pays en collationnant les échantillons des bateaux de commerce et des bateaux feu et propose un développement ultérieur de ce service. Cette proposition est adoptée.

M. Eggvin attire l'attention sur l'intérêt qu'il y aurait à combiner les recherches de croisières avec des observations de stations fixes sur les côtes de la Mer du Nord et du canal des Féroë-Shetland.

M. Keyser attire l'attention sur la possibilité de faire des observations hydrographiques et biologiques avec les navires de la P.I.C.A.O.[1]) et il est décidé de porter cette question devant le Comité Hydrographique.

Le Sous-Comité décide d'admettre comme membres supplémentaires: M. Thomsen, M. Lumby, Dr. Tait et M. Smed, ce dernier remplaçant le Dr. Jacobsen comme secrétaire.

Le Dr. Blegvad est réélu rapporteur pour l'année suivante.

II. Recommandations.

Il est recommandé que les observations des neuf stations côtières établies actuellement sur la côte Ouest du Danemark, Norvège et Suède soient pour-

[1]) "Provisional International Civil Aviation Organization".

suivies à intervalles réguliers pendant au moins un mois et, qu'en même temps, une croisière soit faite en Ecosse, Suède, et Norvège dans le secteur des Féroë-Shetland, la Mer du Nord et le sud-est de la Mer de Norvège. Ceci serait intéressant pour la pêche norvégienne et écossaise.

Tous les dosages de salinité seront faits par titrage. Il est suggéré que pour ces analyses, des facilités soient sur demande procurées à Copenhague.

Il est recommandé que des recherches préliminaires soient faites sur le problème de suivre les déplacements des masses d'eau, en particulier sur le développement d'une flotte (float) et sur la standardisation de méthodes d'études du plancton.

Il est suggéré que l'influence des facteurs hydrographiques sur les caractères biométriques utilisés dans la recherche des races soit étudiée par des investigations hydrographiques dans les zones de la reproduction des poissons comestibles, spécialement le hareng.

Il est proposé de demander au Comité Hydrographique d'animer les divers pays à rétablir des mesures de courant faites par leurs bateaux feu.

Il est recommandé:

(a) Que le Conseil demande aux nations qui s'occupent de l'équipement des bateaux de 14 Met., participant à la "Provisional International Civil Aviation Organisation (P.I.C.A.O.)" pour la protection de la navigation aérienne entre l'Amérique du Nord et l'Europe, de faire des observations biologiques et océanographiques dans l'Atlantique Nord conformément aux instructions fournies par le Conseil.

(b) Que le Conseil prenne ses dispositions pour que ces instructions soient établies aussitôt que possible, en moins de trois mois.

La question de coordonner les activités de différentes nations en réunissant les échantillons de bateaux de commerce et de bateaux feu est considérée comme une matière importante pour ce Sous-Comité.

Comité du Plancton.

Président: Professeur H. H. Gran.
Le Comité s'est réuni le 15 Août 1946 à 11 h.

I. Compte-rendu.

Une communication est faite par le Professeur F. Bernard sur le sujet suivant: "Études sur le Nanoplankton en Méditerranée". Le cycle vital de *Coccolithus fragilis* Lohmann est décrit. L'espèce présente deux formes avec cycle vital différent, une dans les eaux côtières, l'autre dans les eaux du large.

Le Président Prof. H. H. Gran expose le travail fait sur le plancton par le Conseil International au cours des cinquante années passées. Il souligne les buts principaux de ces recherches dans les premières années du Conseil et le développement de nos connaissances jusqu'aux jours présents.

Un rapport est présenté au Comité par le Dr. P. Jespersen sur la situation présente des "Fiches planctoniques". Il déclare que neuf fiches sont prêtes à être publiées et qu'un certain nombre de fiches manuscrites sont parvenues. Il est souhaité que ces fiches puissent être rapidement éditées.

Une courte discussion suit sur la nécessité de l'uniformisation des méthodes de pêche (collection) du zooplancton, spécialement par des pompes ou des filets étalonnés (measuring nets).

Le Prof. H. H. Gran annonce ensuite son désir de résigner ses fonctions de Président du Comité. Le Prof. Gran a occupé cette chaire avec une grande distinction pendant de nombreuses années et le Comité accepte sa démission avec beaucoup de regrets. Le Comité est unanime pour accorder un vote sincère de remerciements pour les services qu'il a rendus et recommande que le Prof. H. H. Gran soit élu Président d'Honneur.

Le Dr. F. S. Russell est élu Président pour l'année suivante.

II. Recommandations.

1. Le Comité du Plancton recommande que le rapport du Prof. Gran sur cinquante années de recherches sur le plancton soit publié.

2. Le Comité du Plancton recommande qu'une aide financière soit donnée au Dr. P. Jespersen pour la tache onéreuse d'éditer les Fiches planctoniques.

3. Le Comité du Plancton recommande qu'un Sous-Comité soit créé pour étudier la question d'uniformisation des méthodes de collection de zooplancton.

4. Le Comité du Plancton recommande qu'un Sous-Comité soit créé pour préparer une réunion spéciale lors de la prochaine réunion du Conseil pour discuter de l'élevage du poisson, à propos duquel le récent travail du Mr. Rollefsen a montré les grandes possibilités biologiques.

Comité du Saumon et de la Truite.

Président: Prof. KNUT DAHL.

Le Comité s'est réuni le 13 Août 1946 à 9 h. 30 et à 15 h.

I. Compte-rendu.

1) Le Président ouvre la séance et souhaite une cordiale bienvenue aux représentants des différents pays, avec une attention spéciale aux observateurs du Canada et de l'Amérique.

2) M. SØMME est élu secrétaire de la séance.

3) Le rapport de la dernière séance à Copenhague et le rapport annuel sont déposés devant le Comité par le Président.

4) Un compte-rendu est fait par le secrétaire sur les projets de marquage international du saumon dans l'Atlantique Nord, agréés par le Comité à Copenhague l'année dernière. M. SØMME propose des termes et des méthodes standardisés à employer par tous les participants de ce plan. Après une courte discussion le Comité décide que le terme "tagging" emprunté à la terminologie américaine serait employé pour désigner la fixation d'une marque de matière quelconque à un poisson et le terme "marking" pour exprimer une entaille faite sur les nageoires. Toutes les mesures seraient données dans le système métrique et la longueur du poisson serait la distance entre le museau et les rayons du milieu de la nageoire caudale (la fourche caudale).

Il est également adopté que les pays qui ne peuvent obtenir en mer des saumons propres au marquage international pourront apporter leur contribution au plan de travail projeté en marquant des tacons (smolts) et des charognards (kelts).

5) M. EINAR LEA présente un rapport sur les méthodes de marquage de poisson avec une "marque hydrostatique". Les commandes de marques hydrostatiques devant être employés dans le projet international devront lui être adressées (Boîte Postale 226, Bergen) en précisant le texte à imprimer sur les lettres incluses. Des instruments pourront être également fournis.

6) Les pays suivants confirmèrent leur participation au plan international de marquage du saumon: Norvège (saumons immatures); Suède (tacons et si possible immatures); Finlande (charognards et si possible tacons); Danemark (tacons); Pologne (tacons); France (tacons); Espagne (tacons); Angleterre (si possible saumon immatures et charognards); Ecosse (tacons, saumons immatures); Irlande (tacons, charognards et saumons immatures); Islande (tacons, charognards, si possible immatures). M. HIGGINS regrette que les Etats-Unis ne puissent difficilement y participer étant donné que le saumon y est pratiquemment en voie d'extinction. Dr. DYMOND émet l'espoir que le Canada pourra répondre l'année prochaine avec sympathie à l'invitation d'y participer.

7) En ce qui concerne les récompenses à attribuer pour le poisson recapturé il fut décidé que chaque pays règlera toutes "recaptures" faites dans son pays sans considération du lieu où le poisson a pu être marqué.

8) Des rapports sur les recherches entreprises au cours de l'année passée sont présentés pour la Suède par le Dr. ROSÉN, pour la Pologne par le Dr. ZARNECKI et pour la France par le Dr. VIBERT. Il est recommandé que ces rapports, aussi bien qu'une note par le Dr. ZARNECKI sur les échelles à poissons, soient imprimés dans le *Journal du Conseil*.

9) Le Dr. G. ALM rapporte qu'un nouveau comité pour l'étude des poissons migrateurs a été créé en Suède. Une coopération entre ce comité et le Comité du Saumon et de la Truite est souhaitée.

10) La participation de l'Islande dans le plan de marquage du saumon est discutée.

11) M. EINAR LEA fait un exposé sur la technique du marquage du poisson avec la nouvelle marque hydrostatique.

Discussion: Mrs. DAHL, MACFARLANE et HIGGINS exposent les techniques du "tagging" et "marking" respectivement employées en Norvège, Ecosse et Etats Unis.

12) La liste revue des membres est adoptée.

13) Le Dr. K. DAHL est réélu Président pour l'année suivante: à défaut M. S. SØMME.

II. Programme de travail.

1) Les marquages internationaux du saumon pour l'étude internationale des migrations du saumon de l'Atlantique commenceront en 1947 et dureront pendant une période de trois années successives.

2) Le matériel nécessaire pour le marquage (marques et outils) sera fourni par M. EINAR LEA.

3) Une coopération entre le comité suédois pour l'étude des migrations de poisson et le Comité du Saumon et de la Truite est envisagée.

Comité de la Baleine.

Président: Dr. N. A. Mackintosh.
Le Comité s'est réuni le 15 Août 1946 à 14 h. 30.

I. Compte-rendu.

Il est fait référence à la réunion tenue en 1945 dans laquelle il avait été décidé de reconstituer ce Comité et la liste des membres est révisée.

Le Président donne un bref résumé de l'activité de l'industrie baleinière depuis 1939 et sur les problèmes actuels de règlementation internationale. La pêche pélagique de la baleine dans l'Antarctique a cessé en 1941 et la guerre a apporté l'opportunité de considérer si la règlementation ne pouvait pas être améliorée. M. Dobson donne un compte-rendu des conférences sur la baleine qui se sont tenues à Londres en Janvier 1944 et Novembre 1945 et dit que la saison de pêche a été prolongée jusqu'à 4 mois, mais que la protection des megaptères *(Megaptera boops)* a été continuée et qu'une limite extrême de 16.000 unités en baleines bleues a été approuvée. Une Conférence Internationale pour la baleine doit avoir lieu bientôt à Washington où des dispositions seront prises pour les saisons 1947—48 et ultérieures. Après une discussion dans laquelle M. Maurice et d'autres prirent part, le Comité arrêta que pour la protection du stock il était désirable que la limite de 16.000 unités fut maintenue, mais nota que certains ajustements de ce chiffre pourraient être considérés.

Le Professeur Ruud donne un compte-rendu des récentes recherches norvégiennes sur la baleine et décrit une nouvelle méthode de détermination de l'âge des baleines par de délicates mensurations de l'épaisseur des fanons. De bons résultats ont été obtenus pour les jeunes baleines, mais les données obtenues des baleines plus âgées sont plus difficiles à interpréter. Les recherches indiquent que les baleinoptères atteignent l'âge adulte après leur troisième année. L'évidence d'une amélioration de la constitution du stock de baleines a été constatée dans une augmentation de la taille moyenne quoique le pourcentage d'animaux adultes n'ait pas augmenté. Il est également évident qu'il y a une augmentation du stock de jeunes animaux dans les stocks. Des biologistes ont travaillé sur un bateau usine pendant la saison 1945—46; des dispositions ont été prises pour que des inspecteurs puissent faire les observations habituelles sur les ovaires de baleine et prélever des fanons en 1946—47.

Le Président dit que le Comité du "Discovery" a continué les recherches sur la baleine pendant la guerre et souhaite que ce travail soit poursuivi dans l'avenir. Des biologistes ont travaillé dans les usines et des prélèvements d'ovaires ont été continués. Des prélèvements d'ovaire de baleines bleues pendant plusieurs années successives ont montré un changement progressif dans la constitution du stock. Dans les baleinoptères en 1945—46 il y avait un pourcentage plus élevé de jeunes baleines et un pourcentage plus faible de baleines âgées qu'au commencement des hostilités. Il a été considéré comme très important que des ovaires et des fanons soient recueillis sur toute baleine montrant une marque "long-term". Il est également souhaité que le marquage des baleines soit poursuivi.

Le Dr. Mackintosh est réelu Président pour l'année suivante.

II. Recommandations.

1. Les données statistiques portant sur les conditions des stocks de baleines de l'Antarctique relevées chaque année continueront à être recueillies au cours des futures années de pêche.

2. Qu'en addition des secteurs II et V de pêche antarctique établis par Hjort, Lie et Ruud, soient acceptés les nouveaux secteurs I et VI provisoirement définis par Mackintosh et couvrant principalement le secteur pacifique.

Comité Statistique.

Président: Professeur Sir D'Arcy W. Thompson.
Le Comité s'est réuni à 16 h. le 13 Août 1946.

I. Compte-rendu.

1) Le Bulletin Statistique pour 1938 édité en 1944 est soumis et approuvé.

2) Le Comité procède à la discussion des documents en mains pour les années 1939—1945. L'abondant matériel pour l'année 1939 fera l'objet d'un autre Bulletin annuel, mais il est convenu de combiner les statistiques des années 1940—1945 en un seul Bulletin, ainsi qu'il l'a été fait en 1914—1918.

3) Le Président présente de nouvelles tables rectifiées, préparées par Mlle Hansted pour la morue et six autres poissons importants pour les années 1906—1938; ces tables montrent les quantités totales débarquées: (a) dans plusieurs pays, (b) en provenance des principales zones de pêche. Mlle Hansted est remerciée pour la préparation de ces tables importantes.

4) Le Comité discute sur la conversion en poids équivalents du poisson salé, étêté et vidé à la mer et sur d'autres sujets en rapport avec le précédent. Une brochure d'information présentée par les officiers de pêche suédois est soumise au Comité en suggérant que des instructions semblables soient éditées dans les autres pays.

5) Le rapport d'une conférence sur les Statistiques sur les Aliments et l'Agriculture (Food and Agricultural Statistics) tenue à Londres en Septembre dernier, est présenté au Comité. L'attention est attirée spécialement sur certains facteurs de conversion discutés lors de cette Conférence aux mains de laquelle le sujet reste pour un développement ultérieur.

6) La question des poissons utilisés pour la fabrication de farines et engrais est discutée, mais le désir d'informations complètes fait reporter la question à la réunion de l'an prochain.

7) Le Comité discute longuement une proposition de publier des cartes mensuelles de pêche du hareng; le sujet demandant la coopération d'autres Comités est renvoyé au Comité Consultatif[1]).

8) Sur la proposition du Dr. E. S. Russell, Sir D'Arcy Thompson est réélu Président. En acceptant cette charge, Sir D'Arcy explique que le Dr. Niels Rosén devra désormais prendre sa place comme éditeur du *Bulletin Statistique*.

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[1]) Voir la rec. 2 du Comité du Nord de la Mer du Nord.

RAPPORTS

ET

PROCÈS-VERBAUX DES RÉUNIONS

VOLUME CXVII

2ÈME PARTIE

RAPPORT ADMINISTRATIF

(1945)

REPORT

of

ADMINISTRATION 1945—1946

I. General.

Composition of the International Council for the Exploration of the Sea.

At the last meeting of the Council in October 1945 the Delegates were asked to make it quite clear in their respective countries that they should commit themselves for a new period of adherence of five years. From most of the participating countries official announcements have been received to the effect that they agreed to an adherence for a new five year period as from July 22nd 1945. Such countries that have not on their own initiative formally given their adhesion have been asked through the Danish Foreign Office to do so in due time before the Meeting of the Council in August 1946.

Furthermore it was adopted at the last Meeting that Canada, New Foundland, U. S. A. and U. S. S. R. should be invited through the usual diplomatic channels to join the Council. According to this decision the General Secretary, through the Danish Foreign Office, sent letters, asking the above-named countries to join the Council. A certain number of the last issue of the Procès-Verbaux accompanied these letters. Unfortunately a definite answer has not yet been received with regard to membership of the Council; Observers will, however, take part in the meeting from Canada (Dr. DYMOND) and U. S. A. (Mr. ELMER HIGGINS).

Composition of the Bureau.

At the Council Meeting in October 1945 Dr. K. A. ANDERSSON and M. le Président PIERRE TISSIER were elected Vice-Presidents in lieu of the late M. le Président THÉODORE TISSIER and Dr. C. HEINRICI. The other members of the Bureau were re-elected. The Bureau thus consists of: Professor Dr. JOHAN HJORT, President, Professor MARTIN KNUDSEN, Mr. A. T. A. DOBSON, Dr. K. A. ANDERSSON and M. PIERRE TISSIER Vice-Presidents. Mr. H. G. MAURICE is Président d'Honneur.

General Secretary.

According to the decision of the Bureau (Rapp. et Proc.-Verb., Vol. No. 116, I p. 18) I took over the post as General Secretary after the meeting of the Council in October, 1945.

Committees.

All Committees—except the Atlantic Committee, the Combined North Sea and Eastern Channel Committee and the Statistical Committee—met in October 1945. The following Committees elected new Chairmen:—

> North Eastern Area Committee: Mr. G. ROLLEFSEN (in lieu of the late Mr. OSCAR SUND). Atlantic Slope Committee: Prof. JEAN LE GALL (in lieu of Dr. ED. LE DANOIS). Southern North Sea Committee: Mr. R. S. WIMPENNY (in lieu of Dr. A. BÜCKMANN). Salmon and Trout Committee: Prof. KNUT DAHL (in lieu of the late Prof. M. SIEDLECKI).

A list of the Committees and their members will be found in pt. I, pp. 23—25.

Meetings.

A meeting of the Bureau took place in October 1945 in Copenhagen. Present were all members of the Bureau, except M. PIERRE TISSIER for whom Dr. LE GALL acted as substitute, and the General Secretary. Simultaneously with the Overfishing Conference in London in March/April, in which the President, Dr. K. A. ANDERSSON and the General Secretary took part, meetings were held by all members of the Bureau except Professor KNUDSEN who was prevented being absent in South America.

In accordance with the decision of the Council (Rapp. et Proc.-Verb., Vol. No. 116, pp. 19, 33 (III, 2) and 46 (III, 2)) a meeting of Herring Experts from Norway, Sweden and Denmark took place after the

Income and Expenditure Account for the year ending July 21st, 1946.

EXPENDITURE

	D. Kr.	D. Kr.
I. Incidentals.		
1. President	6,000.00	
2. Editor of the Journal	2,000.00	
3. Editor of Statistics	1,500.00	
4. Chairman of Consultative Committee	2,250.00	
5. Chairmen of Committees	20,500.00	
6. Secretary to the Faxa Bay Committee	2,000.00	34,250.00
II. Headquarter Staff.		
1. General Secretary	6,750.00	
2. Biological Assistant	2,250.00	
3. 1st Assistant Secretary	9,000.00	
4. 2nd — —	6,550.00	
5. Statistical Secretary	6,550.00	
6. Clerical Assistant	4,500.00	
7. — —	4,200.00	
8. — —	1,925.00	41,725.00
III. Hydrographical Staff.		
1. Hydrographical Consultant	3,000.00	
2. Hydrographer	5,250.00	
3. Hydrographical Secretary	6,825.00	
4. Hydrographical Assistant	2,350.00	17,425.00
IV. Office Expenses.		
1. Rent	5,580.00	
2. Light & Heating	1,106.39	
3. Stationery	1,762.67	
4. Telephone, Postage	1,911.36	
5. Furniture and Fittings	46.50	
6. Insurance	2,655.11	
7. Upkeep, cleaning	2,338.34	
8. Miscellaneous	3,753.45	19,153.82
V. Travelling Expenses		21,876.03
VI. Printing and Distribution.		
1. Printing	4,733.89	
2. Drawings, translations	664.79	
3. Distribution	165.53	5,564.21
VII. Pension Fund		3,500.00
VIII. Extraordinary Expenses.		
Prof. KNUDSEN as acting Vice-Pres.	750.00	
Madame GILSON	1,000.00	
Madame SUND	1,500.00	3,250.00
Total Expenditure		146,744.06
Excess of Income over Expenditure		78,117.67
		224,861.73

INCOME

	D. Kr.	D. Kr.
I. Contributions.		
1. Voluntary Contribution from Iceland for the period 1941/42—1944/45	40,000.00	
2. Extraord. Contrib. from Denmark for August and September 1945	7,000.00	
3. For 1945/46		
France 18,000.00		
Great Britain 20,000.00		
Belgium 6,000.00		
Denmark 10,000.00		
Iceland 10,000.00		
Norway 10,000.00		
Sweden 10,000.00	84,000.00	
4. Outstanding Contributions for 1945/46:		
France 2,000.00		
Belgium 4,000.00		
Eire 10,000.00		
Spain ?		
Poland ?	16,000.00	
		147,000.00
II. Interests		
1. on Bank Deposits	663.84	
2. on Investments	4,805.04	
		5,468.88
III. Sale of Publications		350.83
IV. Extraordinary Income.		
Transfer of Honoraria not to be paid (Rapp. et Proc.-Verb. Vol. No. 116, p. 15)		72,042.02
Total Receipts		224,861.73

Statement of Pension Fund Account, 1945—46.

EXPENDITURE		INCOME	
Balance as per 22/VII 1946	100,417.10	Balance as per 22/VII 1945	92,786.44
		Transfer from revenue	3,500.00
		Interests	4,130.66
Kr.	100,417.10	Kr.	100,417.10

Balance Sheet, July 20th, 1946.

LIABILITIES			ASSETS		
Capital Reserve:			Cash at Handelsbanken	138,196.35	
Balance as per July 22nd, 1945	223,684.37		Cash at Ordrup Charlottenlund Bank	7,539.22	
Less Latvia's Contribution for 1939/40 and 1940/41 written off	10,000.00		Cash at Postgiro	10,994.73	
	213,684.37		Cash at hand	1,245.58	
Plus Excess of Income over Expenditure	78,117.67				157,975.88
		291,802.04	Danish Treasury Bonds, nominal value 126,100.00 (Market value on July 19th[1]): Kr. 130.826.50) at cost		123,611.40
Pension Fund		100,417.10	Pension Fund:		
Total Funds		392,219.14	Cash at bankers	269.94	
Creditors:			Debtors (Interests per July 20th, 1946)	1,421.44	
At disposal for the President	24,294.69		Danish Treasury Bonds, nominal value Kr. 100,900.00 (Market value on July 19th[1]): Kr. 105,635.00) at cost	98,725.72	
Sundry Creditors	2,448.57				100,417.10
		26,743.26	Debtors:		
			Contributions 1940/41[2])	19,347.20	
			Contributions 1945/46	16,000.00	
			Sundry Debtors (esp. interests per 20/VII)	1,610.82	
					36,958.02
	Kr.	418,962.40		Kr.	418,962.40

[1]) The stock exchange was not open on July 20th.
[2]) Outstanding contributions from Spain and Poland not included.

We have scrutinized the foregoing Balance Sheet and are satisfied that it is correct.

(sign.) Martin Knudsen. H. Blegvad.
Johan Hjort.

We have compared the above Balance Sheet with the Books and Vouchers of the Council, and certify that it is in accordance therewith. We have verified the existence of the cash in hand and at bankers as well as of the Treasury Bonds.

Copenhagen, August 8th, 1946.

(sign.) J. Ejlersen. (sign.) Karl Sørensen.
State-Certified Auditor. State-Certified Auditor.

Council Meeting on October 20th to 22nd 1945. The meeting was attended by: Dr. K. A. Andersson, Dr. A. R. Molander, Dr. H. Höglund, Dr. Alf Dannevig, Mr. E. Lea, Dr. E. M. Poulsen, Mr. Paul M. Hansen and the General Secretary. A report of the meeting is printed in Rapp. et Proc.-Verb., Vol. No. 116, part II p. 19/20.

A meeting for discussion of methods employed in herring research, as recommended by the Northern North Sea Committee (see Rapp. et Proc.-Verb., Vol. No. 116, pp. 19, 32 (III, 2) and 45 (III, 2)) took place in Aberdeen in June 1946. This meeting was attended by Dr. R. S. Clark, M. P. Desbrosses, Mr. Á. Friðriksson, Prof. J. le Gall, M. C. Gilis, Dr. W. C. Hodgson, Dr. Aa. J. C. Jensen, Mr. E. Lea, Mr. S. Vagnsson, Dr. H. Wood and the General Secretary. A report of the meeting will be found in this volume, on p. 8—9.

The three editorial members of the Faxa Bay Sub-Committee, Mr. Friðriksson, Mr. Graham and Dr. Tåning, met according to the decision of the Council (Rapp. et Proc.-Verb., Vol. No. 116, pp. 19, 30 (III, 1—2) and 42 (III, 1—2)) on April 2nd, 1946 in London and on May 27th—29th at Lowestoft. The final report of this Committee will be discussed by all members of the Sub-Committee on August 11th this year.

Audit of Accounts.

The Accounts for the years 1939/40 to 1944/45 are being audited by the Finance Committee and await approval of the Council.

The Accounts for 1945/46 have been audited by a qualified accountant and are presented overleaf with the signature of the auditors, the President, Professor Knudsen and myself.

The Statement of Accounts gives rise to the following remarks:

Expenditure.

On both items "Headquarter Staff" and "Hydrographical Staff" Kr. 2,750.— was put aside for Clerical Assistance. A minor saving of in total 1,125 Kr. is due to the fact that such clerical assistance was not secured until from November 12th 1945 and January 1st 1946 respectively, and that 275 Kr. a month was paid for the first three months and then 300 Kr. monthly. "Office Expenses" is showing a minor saving of about 850 Kr. while the item "Travelling Expenses"—which could be estimated very roughly only in October last—shows an excess over Estimate of about 6,900 Kr. "Printing and Distribution" amounts to no more than Kr. 5,564.21, as one publication only, viz., the Procès-Verbal of the last Council Meeting, has been issued.

Income.

The Income amounts to Kr. 224,861.73. The Excess of Income over Expenditure amounts to Kr. 78,117.67. In the Estimates of last year an Excess of Income over Expenditure was reckoned to Kr. 133,114.22, but it must be noted that the outstanding Contributions from 1939/40 and 1940/41, Kr. 69,347.20, were added in the Estimates in order to show the real Receipts—although these Kr. 69,347.20 figure as Debtors in the Accounts for 1944/45. Debtors also included 10,000 Kroner due from Latvia for the years 1939/40 and 1940/41 which amount has now been written off according to the Bureau's decision.

Balance Sheet.

Comparing this year's Balance Sheet with that of the preceding year it will be noted that the reserve has been raised to Kr. 291,802.04 as against Kr. 223,684.37 last year.

The Pension Fund has increased from Kr. 92,786.44 to Kr. 100,417.10, partly from interest added to the capital, partly from a vote of Kr. 3,500,— as previously. The last time this amount was added to the Pension Fund was in 1940/41, as no such payment was considered justified after the expiration of the last five-year period.

The Outstanding Contributions have been diminished by Kr. 60,000.—, i. e., Great Britian's contributions for 1939/40 and 1940/41, Kr. 40,000.—; Iceland's contribution for 1940/41, Kr. 10,000.— and Latvia's two contributions à 5,000.— written off.

II. Work at the Central Office in Copenhagen.

Under my supervision Miss E. Brønniche, 1st Assistant Secretary, has—besides the voluminous general correspondence—especially taken charge of the accounts. In this work she has been assisted by Miss E. Hedegaard. Miss M. Rehder, 2nd Assistant Secretary, has dealt with proof reading, correspondence on publications and filing, assisted by Mrs. Gormsen. Miss I. Hansted has been in charge of the Statistical Department, aided by Miss Christiansen.

Publications and Library.

The Council's publishing activity has unfortunately been severely handicapped by strongly reduced printing facilities. The printing firms are overburdened and a strike of workmen and artisans in the spring made matters worse. Vol. No. 116 of the Rapp. et Proc.-Verb. series—Procès-Verbal of the October meeting and Administrative Report 1942—45—did not come out until May, and it is with great difficulties only that we have succeeded in having proof-prints ready for the present Council Meeting of the Area Reports for 1945 and of the *Annales Biologiques* Vol. II. The Journal should, according to the Council's resolution, already have been restarted, but although we have received the manuscripts for a new issue (XV, 1) it has not been possible to commence the composition. It is the same with the Plankton Sheets

and with Professor JÄRVI's Salmon Report; it is however hoped that work with these publications can be taken in hand as soon as the Annales have been published.

The distribution of Rapp. et Proc.-Verb. 116 took place in May last, and simultaneously were sent to those countries, from which we had been cut off during the war, all publications issued and not despatched since 1940. The distribution is effected through the intermediary of a newly established Danish institution, the "Institut Danois des Echanges internationaux de publications scientifiques et littéraires" of the Royal Library. This distribution is free of charge.

Books and periodicals for the library are again coming in, among others such series which had been withheld during the war by the publishing institution, the work on indexing these papers is made by the staff at the Central Office in its spare time.

Statistical Department.

The compiling of the statistics for the war years has been continued as far as it has been possible.

H. BLEGVAD.

Hydrographical Department.

The work in the Service Hydrographique has been carried out under the leadership of the Hydrographic Consultant, Prof. MARTIN KNUDSEN. The staff has been: the Hydrographer, Dr. I. P. JACOBSEN until his death on 19th June, 1946, the Hydrographical Secretary, Mr. J. SMED, M. Sc.; and a woman clerk.

The following work was carried out:

Bulletin Hydrographique. At the meeting of the Hydrographical Committee in 1945 it was recommended that hydrographic material as hitherto should be sent to the Service Hydrographique in order that it might be inspected there and as far as possible treated as before. In accordance with this recommendation circular letters asking for unpublished material from the years 1939—45 were sent out. The material received up to now has been prepared as manuscript.

Off-prints and thermograms. Off-prints of temperature and salinity material, and copies of temperature curves from thermograms have been delivered at request.

Hydrographic card-index. The card-index of the Council was considered by a Sub-Committee in whose work Dr. JACOBSEN took part. The revision of the hydrographic part of the card-index has been continued. Copies of the index-cards have been delivered at request.

Drift-body experiments. At the Council Meeting in 1945 Dr. JACOBSEN was nominated Secretary in the Sub-Committee for Discussion of Combined Hydrographical and Biological Investigations. In connection with the work of this Sub-Committee Dr. JACOBSEN has carried out some model experiments with drift bodies and had, in collaboration with Mr. HELGE THOMSEN from the Danish Hydrographical Laboratory planned some trial experiments with drift-bodies in Danish waters.

Scientific working-up of hydrographical material. Dr. JACOBSEN has continued his working-up of the monthly means and anomalies of the surface temperature during the years 1900—1913 for various localities in the North Atlantic, published in 1919 in the *Bulletin Hydrographique*. The regularities in the variation of the temperature have been investigated and particular stress has been laid upon a discussion of the occurring anomalies. At the death of Dr. JACOBSEN the work was so advanced that it will be possible to complete the investigation. The paper is entitled: "Some Characteristic Features in the Variation of the Surface Temperature in the North Atlantic".

Mr. SMED has completed his working-up of hydrographic material from the Orkney-Shetland area. The results are given in a paper "Inflow of Atlantic Water into the North Sea through the Orkney-Shetland Channel", which is going to be printed in the *Journal du Conseil*".

For the north-westernmost parts of the North Atlantic Mr. SMED has computed monthly anomalies of the surface temperature during the years 1876—1939. It is found that for these areas the temperatures after about 1920 are essentially higher than in previous years. The paper, entitled "Monthly Anomalies of the Surface Temperature in the Sea round South Greenland during the Years 1876—1939", is now in print in the *Annales Biologiques*. As such anomalies are probably of some interest, especially to the marine-biologists a similar work has been taken up for other areas in the North Atlantic.

On the basis of temperature material contained in the hydrographic card-index of the Council and some additional material from lightvessels Mr. SMED has computed monthly mean values or mean anomalies of the surface temperature during a series of years for several areas and stations in the southern North Sea. The results are given in a paper "The variation from Year to Year of the Surface Temperature in the Southern North Sea" now in print in the *Annales Biologiques*.

Furthermore Mr. SMED has proceeded with the investigation of the water exchange between the Norwegian Sea and the North Sea on the basis of the existing hydrographic observations from sections covering the northern entrance to the North Sea.

Correspondence, including elaboration and distribution of minutes from the meetings of the Hydrographical Committee and of circular letters, has been attended to.

MARTIN KNUDSEN.

Meeting of Herring Experts

held at the Marine Laboratory, (Scottish Home Department), Aberdeen, 4th to 7th June, 1946.

Convener: Dr. R. S. Clark.

Present: Dr. H. Blegvad, Dr. R. S. Clark, Mr. P. Desbrosses, Mr. Á. Friðriksson, Prof. J. le Gall, Mr. C. Gilis, Dr. W. C. Hodgson, Dr. Aa. J. C. Jensen, Mr. E. Lea, Mr. S. Vagnsson, Dr. H. Wood.

I. Proceedings.

The Convener welcomed the experts and intimated an apology for absence from Dr. Russell, Chairman of the Consultative Committee.

Dr. Clark was unanimously elected Chairman of the meeting. He explained that samples of herrings from Fraserburgh, Peterhead and the Shetlands had been obtained for use by the experts in demonstrating their particular methods. The Chairman further expressed the wish that by the end of the meeting, definite conclusions would be reached as to standard methods to be employed in herring research.

Dr. Blegvad, General Secretary, recalled that there had already taken place three meetings of herring experts, the last, in October 1945, being confined to Scandinavian experts. He felt that, as the first two meetings had taken place so long ago, namely in 1930 and 1935, it was now necessary to discuss again the various methods which had been developed since those meetings took place. Dr. Blegvad emphasised the importance of the present meeting in view of the special meeting on herring to be held at Stockholm in August 1946.

The recommendations of the meeting of Scandinavian experts in October 1945 were then discussed and special attention was given to Items 4, 6, 7 and 9[1]).

The methods used by each expert in the examination of herrings were demonstrated. The main difference in the methods lay in the preparation of the herring for the counting of vertebrae. Most of the experts favoured the cutting up of the fresh fish for this purpose but the method used by Dr. Jensen, namely, boiling the fish in order to remove all the flesh, had some advantages.

Dr. Lea demonstrated a new apparatus of his own design which, it is claimed, eliminates personal error in measuring the total length of herrings.

Dr. Lea also demonstrated the different types of annual rings on herring scales from Norwegian waters. These patterns were also observed in material from Iceland and Shetland.

An interesting demonstration was given by Dr. Jensen of a graphic method of comparing different racial characters of herrings in Danish waters, particularly with reference to the characters Vert. S, K_2 and pre-haemal vertebrae.

The unanimous view of the meeting was that there should be more frequent meetings of herring experts as a body and that every effort should be made by each expert to enlist the support of his National Government so as to ensure personal contacts between the various experts.

II. Recommendations.

1. When herring samples are examined, the stomach contents of the fish should be noted and a general description given. For general purposes, it will only be necessary to describe the stomachs as "full", "half-full", or "empty".

2. Care should be taken to ensure that each sample is statistically adequate, bearing in mind the age and length distributions of the stock from which the sample is taken.

3. Length of the herring should be measured from the tip of the snout to the tip of the ventral tail lobe lying in the middle line. For all race work fish should be measured in millimetres and for all other work in centimetres or half-centimetres; in all cases to the unit below, according to the requirements of each individual worker and with due regard to the stock of fish in question. It is recommended that both centimetre and half-centimetre methods be used for one year in order to compare the results of the two methods. A correction of $+0.5$ of the unit of measurement used should be added to such standards as means, modes, etc.

4. It is recommended that the measuring apparatus designed by Dr. Lea be adopted universally as soon as it can be put on the market.

5. Fused vertebrae should be noted but herrings

[1]) See Vol. No. 116, p. 20.

with such should be excluded from the calculations. Each vertebra with several processes but without signs of fusion should be counted as one and the herring in question should be included in the calculations. The urostyle should be counted as one vertebra.

6. It is recommended that pre-haemal vertebrae should be counted on fish of spawning communities as an additional race character.

7. It is recommended that K_2 as a race character should be investigated also by countries who have not used this method hitherto.

8. It is recommended that the character L_1, as generally accepted, should be used as a means of distinguishing herring from different environments.

9. The great importance of fishery statistics was stressed and the experts were asked to try to make national herring statistics as complete as possible.

10. The publication of fishery reports and the circulation of confidential data such as the distribution of size, age, number of vertebrae, keeled scales and any other facts available, are recommended.

11. The production of twelve charts of North West Europe showing the distribution of the different commercial stocks of herring for each month of the year, and the seasonal changes in the quality of the fish, should be referred to the International Council.

12. It is recommended that each expert should contribute scale material towards the formation of type collections to be in the possession of each expert, and further that adequate material should be exchanged by experts on request.

It is suggested that items 10 and 11 above should be referred to the International Council through the medium of an Area Committee, preferably the Northern North Sea Committee as representing the most important and central area for the herring fisheries.

Reports of Area Committees.

NORTH-EASTERN AREA COMMITTEE

1945—1946.

By

GUNNAR ROLLEFSEN.

The reports which have been received from the members of the committee show that most of the countries have been able to undertake very little or no work in the area during the period May 1945—May 1946. Reports have been given by Denmark, England, France, Iceland, Scotland, Sweden and Norway.

CRUISES.

England reports scientific work during two cruises of commercial trawlers in October—December 1945 to the Bear Island area.

Norway: During the period May 8th 1945—December 31st 1945, five cruises took place in coastal waters and in the fjords of the Norwegian coast with m/k "Johan Hjort" and 3 hired vessels.

During the period January 5th 1946—June 1st 1946, five cruises with m/k "Johan Hjort" and three cruises with hired vessels are reported. Also two vessels from the Royal Norwegian Navy have taken part in the investigations, the two corvettes "Buttercup" and "Eglantine". These two vessels were put at the disposal of the Fisheries Directorate for the study of the registration of fish shoals, cod and herring, by means of "Asdic". The penetration of "Asdic" waves through water layers with different density was also investigated.

Of the eight cruises seven were undertaken in coastal waters and fjords and one in the eastern part of the North Sea, Skagerak and Kattegat.

OCEANOGRAPHY.

Norway: Reports from observations on the hydrographical conditions have only been received from Norway.

A. On the cruises mentioned above, the number of stations amounted to 411. Over 8000 water samples were taken for determinations of salinity, oxygen content, P_2O_5 and pH.

B. The permanent stations: In all there are now eight permanent stations at work. Observations on t° and S $^0/_{00}$ are made in different depths once a week in the months December to April and once a fortnight in the rest of the year. Two of these stations are new, the Træna station (Lat. 66°38′3″ N., Long. 12°4′6″ E.) and the Ona station (Lat. 62°54′0″ N., Long. 6°30′5″ E.). The Træna station is taking observations at different depths down to 225 m.; the Ona station to 200 m. Besides the observations of S $^0/_{00}$ and t° samples of phytoplankton are also taken from the following depths: 1—10—25—50 and 75 m.

C. Thermograph Series: Observations of surface temperatures along the Norwegian coast from regular steamship routes have now been resumed. Continuous readings are obtained throughout the ship's journey from the Oslo fjord to the Varanger fjord. Similar observations between Bergen and Rotterdam and Bergen and Newcastle were resumed in October 1945 and June 1946 resp. after having been interrupted since September 1939.

PLANKTON.

England: Samples of plankton were taken by the Hardy indicator on a cruise of a commercial trawler to the Bear Island area in October—November.

Norway: During the cruises plankton was, as usual, collected by tow-nets hauls. Material collected in previous years has been catalogued and worked up.

BIOLOGY.

A. Cod.

England: Observations were made on the age and composition of the Bear Island stock of cod and haddock during two cruises of commercial trawlers between October 18th and November 11th, and November 16th and December 13th, 1945. Maturity of the cod was studied on the second cruise. Notes

were also made on the percentage feeding and on food present in the stomachs.

Norway: The material of cod collected in Norway mainly originates from the Lofoten area and accordingly consists of "Skrei".

Measurements, age determinations and analyses of the number of vertebrae have been continued on the same lines as before, but the amount of material collected during the last season has increased in relation to previous years. Also samples of the 0-groups of cod have been investigated.

B. Herring.

Owing to difficulties of transport, the herring investigations in the area have been seriously hampered and as yet no rapport is available.

OTHER INVESTIGATIONS.

Norway: A. The work upon the problems regarding the effect of artificial hatching of plaice has been continued. About 3 millions of newly hatched hybrid larvae (*platessa* ♀ and *flesus* ♂) were liberated in the Borgenfjord in March 1946. In connection with this experiment about 300,000 hybrids, which have been brought up to the bottom stage by means of the special feeding method, will be liberated in the last part of June, while percentage observations on the occurrence of young hybrids will be made in the autumn. The degree to which the metamorphosed fish remain in the locality in which they have been liberated will also be investigated.

B. Samples of the deep-sea prawn in the northern and arctic waters have been collected. Maturation problems and the change of sex with age have been studied further.

C. Investigations of the horse mussel (*Modiola-modiolus*) have been continued.

List of Publications 1945—1946.

A. Rep. Norw. Fish. and Mar. Invest.

Vol. VIII, No. 3, 1945.

Oppdrett av østersyngel. Forsøk utført ved Statens Utklekningsanstalt ved Flødevigen 1933—1943.

No. 4, 1945.

Alf Dannevig: Undersøkelser i Oslofjorden 1936—1940. Egg og yngel av vårgytende fiskearter.

No. 5, 1946.

Kristian Fredrik Wiborg: Undersøkelser over oskjellet (Modiola modiolus (L.)). I. Alminnelig biologi, vekst og økonomisk betydning.

No. 6, 1946.

Ragnv. Løversen: Torskens vekst og vandringer på Sørlandet. Belyst ved merkingsforsøk 1937—1943.

B. Årsber. vedk. Norges Fiskerier.

Årsberet. 1940 (1940—1942).

Asbj. Johannesen: Statens Forsøks- og Lærebruk for Fiskeribedriften i Finnmark 1939—40.

Anderssen-Strand: Lofotfisket 1940.

Håkon Vikse: Vintersildfisket i 1940 sør for Stad.

Årsberet. 1941 (1941—1943).

Anderssen-Strand: Lofotfisket 1941.

Asbj. Johannesen: Statens Forsøks- og Lærebruk for Fiskeribedriften i Finnmark 1940—41.

Håkon Vikse: Vintersildfisket i 1941 sør for Stad. Beretninger om torskefisket utenom Lofoten og om vintersildfisket nord for Stad.

Årsberet. 1942 (1942—1943).

Anderssen-Strand: Lofotfisket 1942.

Håkon Vikse: Vintersildfisket 1942.

Årsberet. 1943 (1943—1945).

Lofotfisket 1943.

Håkon Vikse: Vintersildfisket 1943.

Gerhard M. Gerhardsen: Norske fiskefarkosters alder og størrelse.

— Vintersildfiskets lønnsomhet 1940—1943. En driftsøkonomisk undersøkelse.

Notevarp Olav: Statens Fiskeriforsøksstasjon. b. Analyser 1937—1942.

Årsberet. 1944 (1945).

Håkon Vikse: Vintersildfisket 1944.

Lofotfisket 1944.

Årsberet. 1945 (1946).

Lofotfisket 1945.

C. Other Publications.

Alf Dannevig: Ålens reaksjon på miljøforandringer. Naturen, Årg. 69, No. 12. Grieg. Bergen 1945.

— Fisken og været. Naturen, Årg. 69, No. 3. Grieg. Bergen 1945.

Gerhard Meidell Gerhardsen: Våre fiskerier under og etter krigen. Sak og Samfunn, Nr. 7. Chr. Michelsens Institutt. Bergen 1945.

— Våre fiskerier i mellomkrigstida. Sak og Samfunn. Nr. 6. Chr. Michelsens Institutt. Bergen 1946.

— Norsk fiske idag. Fiskets Gang, No. 23 ff. Fiskeridirektøren. Bergen 1946.

Magnus Halaas: Ålevadet og ålefisket. Fiskets Gang, No. 22. Fiskeridirektøren. Bergen 1946.

Thor Iversen: Trålfiske. Fiskets Gang, No. 20 og 22. Fiskeridirektøren. Bergen 1946.

— Vår-Ishavsfangst. Fiskets Gang, No. 16. Fiskeridirektøren. Bergen 1946.

Birger Rasmussen: Dypvannsrekens biologi i nytt lys. Naturen, Årg. 70, No. 1. Grieg. Bergen 1946.

Arne Revheim: De viktigste undersøkelser over den europeiske ål utvikling og gytefelter. Naturen, Årg. 69, No. 6. Grieg. Bergen 1945.

NORTH-WESTERN AREA COMMITTEE

1945.

By

Å. Vedel Tåning.

None of the countries represented at the Committee were able to operate research vessels during the year; and only from Iceland were chartered vessels in commission. Contributions from work at sea are accordingly available only in very limited numbers for the years 1940—45, and the interruption caused by the war will be felt in the research work during several years. Collecting of material from the fishery has however been carried out, especially in Icelandic and Greenland waters.

Hydrographical observations have been obtained on a very reduced scale only.

A few preliminary remarks on work carried out during the first part of the year 1945 were given in the administrative report from the Committee at the meeting in October 1945 (see Rapp. et Proc.-Verb., Vol. No.116, II, p. 25—30).

Denmark.

No work was carried out at sea in the North-Western Area by the Danish research vessel.

From Faroese waters very few observations were obtained, *inter alia* because very extensive areas have been declared dangerous owing to mines. Collecting of material from fish landed at the Faroes was restarted as far as possible. Few hydrographical observations were obtained.

In Greenland waters work at sea had to be abandoned, but collecting work was continued on the same lines as during the war. **Cod**: Samples of otoliths and measurements were collected at several fishery stations at West-Greenland. Marks of recaptured cod and other fishes with particulars on recapture were received from fishery stations.

Hydrographical observations in East-Greenland waters were obtained in July-August by "Godthaab" (Commander B. Clausen).

Eire.

No work carried out during 1945.

England.

No work carried out during 1945.

France.

No work carried out during 1945.

Holland.

No work carried out during 1945.

Iceland.

Work at sea. In the beginning of the war the research vessel "Þór" had to be chartered for commercial use. Therefore the routine work in Faxa Bay had to be postponed until 1945, when we finally succeeded in hiring a small motor-trawler (65 feet head-line) for the purpose. Four trips were made in the bay, in February, May, August and November. Five stations were visited, viz., two in the south (outside and inside the territorial limit), two in the north and one in the central part of the bay (Jökuldjúp).

Cod: Nearly 62,000 cod were measured and otoliths collected from over 9,000. The material originates from the following 8 land-stations (Number of otoliths in brackets): Westman Isles 26,012 (2,915), Keflavík 4,521 (401), Akranes 4,407 (401), Ísafjord 2,305 (201), Siglufjord 6,568 (550), Þórshöfn (153), Nordfjord 2,998 (378), and Hornafjord 2,759 (198). Besides this the Faxa Bay cruises yielded 2,822 measurements and 824 otoliths and 9,161 (3,160) were treated on board commercial trawlers.

Haddock: Nearly 44,000 were measured, distributed as follows: Westman Isles 28,897 (2,617), Siglufjord 1,001 (303), Nordfjord 202 (33) and commercial trawlers (100). Further, 13,737 haddock were measured during the Faxa Bay cruises and 1,039 otolith samples were collected.

Other demersal species: 1,759 **coalfish** were measured in the Westman Islands and over 300 otolith samples were collected. During the Faxa Bay cruises 34 coalfish, 50 **lings** 6,518 **plaice** and 1,051 young **halibut** were measured. Otoliths were taken from all the halibut and 1,059 plaice.

Herring: Special attention was paid to the herring of the SW. coast, and a new field station was run at Akranes from spring until late autumn. Further we were able to secure about 1,100 small herrings from Akureyri (N.). 7,502 herrings were measured (Akranes: 3,400 included), 6,400 were weighed (Akr.: 3,400), the number of vertebrae were counted in 7,502 (Akr.: 3,400), 7,036 age determinations were made by the scales (Akr.: 3,099) and 2,227 (Akr.: 1,224) scale-measurements were made. Finally 950 herring stomachs from the N. coast were examined.

Owing to the lack of a research vessel no hydrographical observations or plankton work could be carried out during the year.

Investigations on **salmon** and **trout** had to be abandoned, but provisions have been made to stabilize and extend the limnological activities in the future.

Norway.

No work carried out during 1945.

Scotland.

Haddock and **Halibut** measurements of catches from the Faroe-area, and some of Halibut from the Rockall-Bank (see Ann. Biol. II).

Sweden.

No work carried out during 1945.

Literature.

L. Beaugé: Manuel technique et pratique des grandes Pêches maritimes. 1945.

Paul M. Hansen: Fiskeriundersøgelserne ved Vest-Grønland i 1945. Beretn. vedr. Grønlands Styrelse, 1946.

C. E. Lucas, N. B. Marshall and C. B. Rees: Continuous Plankton Records. The Faroe-Shetland Channel 1939. Hull Bull. on Mar. Ecol., No. 10, Vol. II, 1942.

PLATEAU CONTINENTAL ATLANTIQUE

1945.

Par

JEAN LE GALL.

De grandes difficultés matérielles pour la remise en état ou le remplacement des navires de recherches océanographiques, la présence de mines encore abondantes dans la zone littorale, n'ont pas permis aux services scientifiques et aux laboratoires maritimes, dont certains furent durement éprouvés pendant les hostilités, de reprendre leur activité habituelle dans le secteur défini sous le nom de "Plateau Continental Atlantique" qui comprend toute la zone du plateau continental de l'Atlantique Nord-Est située au sud du parallèle de St-Kilda.

Cependant, cette inactivité ne fut pas totale; et, faute de pouvoir poursuivre leurs recherches à la mer, les chercheurs portèrent leur attention sur l'interprétation des observations faites au cours des années antérieures, sur l'étude des phénomènes littoraux et la biologie des espèces côtières de la faune et de la flore marine, études qui, sans paraître avoir un intérêt direct avec l'industrie des pêches maritimes, n'en apportent pas moins une contribution intéressante aux problèmes posés par l'exploration et l'exploitation des mers.

La plupart de ces études ont déjà été publiées dans des Revues spéciales. Ce rapport administratif du Comité du Plateau Continental n'en donnera donc, le cas échéant, que les références bibliographiques.

Travaux de la Mer.

Pas de croisière océanographique dans le secteur.

Croisière d'essai du navire français "Président Théodore Tissier" à l'entrée occidentale de la Manche et Plateau Continental Celte: 15 Juin—1er Août 1946.

Sorties des observateurs français à bord de bateaux de pêche dans la zone littorale et sur les fonds de pêche du Plateau Continental Celte.

Hydrologie.

Angleterre
Belgique
Danemark
Ecosse
Espagne
} Pas d'observations.

Angleterre.

Teneur en phosphates et en nitrates, en surface et en profondeur et à différentes époques de l'année en Baie de Plymouth: station 50°7′ N., 4°20′ W. Gr. (F. S. RUSSELL).

Eire.

Interprétation des résultats des croisières du "Muirchu" (Avril 1938 et Avril 1939) sur les frayères de maquereau sur le Plateau Continental Celte à l'entrée sud de la Mer d'Irlande.

France.

Interprétation des résultats des croisières et des sorties faites avant et depuis les hostilités (Laboratoires maritimes de l'Office des Pêches).

Etudes des variations de la température de l'eau à Concarneau (R. LEGENDRE, Laboratoire du Collège de France à Concarneau).

Etude des eaux d'origine méditerranéenne dans la région nord-africaine de l'Atlantique (G. ROUX).

Etude physico-chimique du milieu fluvio marin.

Etude de la salinité, pH, température, oxygène dissous, transparence et teneur en suspensions des eaux dans les estuaires de la Seine, de l'Aulne, de la Penzé et de la Loire (B. RAJCEVIC et C. FRANCIS-BOEUF, Laboratoire de Géographie de la Sorbonne).

Etude des sédiments marins.

Classification granulométrique des sédiments, recherches physiques et chimiques sur leur constitution. Etude biologique de leur peuplement (Travaux du Laboratoire de Géographie de la Sorbonne: Prof. BOURCART, C. FRANCIS-BOEUF, ROMANOVSKY, JACQUET).

Circulation des masses océaniques.

Etude de la circulation générale des masses océaniques. Le Commandant L. BEAUGÉ, auteur de cette étude, qui fera l'objet d'une publication spéciale, attribue aux variations du rayonnement solaire à la surface provoquant des différences de densités dans les masses océaniques, la circulation générale de celles-ci.

Plancton.

Etude du plancton des croisières périodiques du "Muirchu" (Irlande) et du "Président Théodore Tissier" (France).

Création d'un Centre de triage et d'étude du plancton au Laboratoire de l'Office Scientifique et Technique des Pêches, Paris.

Biologie des Espèces Comestibles.

A. Clupéides.

Hareng.

Angleterre: L'examen des statistiques des pêches de harengs au filet dérivant et au chalut à Milford Haven laisse penser que ces deux pêches sont basées sur le même stock de poisson, ce qui permettrait de prévoir l'importance de la pêche du hareng de chalut pendant l'été d'après les résultats de la pêche du hareng au filet dérivant pendant l'hiver (C. F. Hickling).

Eire: Observations (longueur et âge) sur les harengs de la côte ouest d'Irlande (Baie du Donegal, baie de Galway), de la Mer d'Irlande et de l'entrée sud de la Mer d'Irlande (Farran).

France: Mensurations concentrations de harengs sur la côte sud de Bretagne (Priol).

Sardine.

Angleterre: Etudes sur la ponte, taille et âge des concentrations de sardines sur la côte méridionale d'Angleterre (C. F. Hickling).

France: Fluctuations de la moyenne vertébrale, répartition des différentes populations des sardines du Golfe de Gascogne (P. Desbrosses, J. Furnestin et Letaconnoux).

Espagne: Résultats non parvenus.

Sprat.

France: Observations diverses sur les concentrations de sprats dans la Baie de Douarnenez et dans le Golfe de Gascogne (Furnestin, Faure).

Anchois.

France: Etude préliminaire de l'anchois du Golfe de Gascogne (Furnestin).

B. Scombrides.

Maquereau.

Interprétation des observations faites en 1938—1939 en accord avec les décisions du Sous-Comité du Maquereau (Déc. 1937).

La distribution des œufs et des larves de *Scomber scombrus* montre que les frayères de l'espèce sont situées dans les axes transgressifs où les eaux atlantiques présentent leur maximum de température et de salinité.

Eire: Dans ces mêmes eaux *Limacina* sp. et *Sagitta elegans* sont également abondantes (Farran).

France: Reprise des observations: mensurations statistiques etc. dans les laboratoires de l'Office Scientifique et Technique des Pêches Maritimes.

Germon.

France: Mensurations, statistique. Examen des otolithes (Priol). Examen de la nourriture du germon (Dr. Legendre).

C. Poissons divers.

Haddock.

Angleterre: Le stock de haddock sur le Banc de Porcupine s'est considérablement accru pendant les hostilités et était en fin de 1944 cinq fois plus dense que la meilleure parmi les années antérieures. Ces haddocks appartiennent surtout à deux classes: 1938—1942. Leur croissance est très rapide 43 cm. à 3 ans, 51 cm. à 4 ans révolus (C. F. Hickling).

Merlus.

Angleterre: La mortalité du stock de merlu a été réduite pendant la guerre de 46 % à 21 % par suite de l'inactivité de la flotte de pêche; une augmentation importante des arrivages de merlus a été constatée à Milford (C. F. Hickling).

France: Ces mêmes faits ont été observés en France à bord des chalutiers opérant également sur les hauts-fonds du Plateau Continental Celte (Letaconnoux, Dizerbo).

Chinchard.

France: Etude de la biologie de *Trachurus trachurus* dans le Golfe de Gascogne (Letaconnoux).

Biologie générale.

Desbrosses, P.: Remarques sur le dimorphisme sexuel chez quelques Téleostéens de la Côte Atlantique Française.

Germain, L. et Fisher-Piette, E.: La faune benthique du Plateau Continental et les méthodes statistiques.

Fisher-Piette, E.; Croissance, taille et longévité de quelques animaux intercotidaux en fonction du milieu.

Drach, P.: Etude de la mue et de l'intermue chez les crustacés décapodes.

NORTHERN NORTH SEA COMMITTEE

1945.

By

R. S. Clark.

The industrial conditions, the absence or shortage of staff and the lack of research vessels have effectively barred the way to new investigations within the area by any of the countries represented on the Committee. The position, however, is gradually improving and re-organisation of the scientific service is now progressing. Research vessels are not yet actually operating but there are indications that most of the countries concerned will have their vessels in commission during 1946. The Scottish vessel "Explorer" has now been refitted and will undertake trawling cruises at an early date. The laboratory at Aberdeen has been functioning for some time on a limited scale but the staff is still short of full complement.

Since the summer of 1945 fish-measuring on commercial trawlers has gone on more or less continuously and a considerable amount of scale material has been collected for age determination. Attention has been given largely to **haddock,** but **lemon soles** and **halibut** have also received treatment. Several commercial samples of the Scottish summer **herring** were measured and scaled.

Some observations on herring frequenting the Fladen grounds were also made from Danish and Swedish vessels during August and September 1945.

Investigations on the use of "Asdic" for spotting herring shoals were carried out during the late autumn fishery off Lowestoft and the spring fishery in the Clyde area.

A few odd drift bottle cards have been received, mostly long duration returns.

Publication of papers held over during the war-period is in process of completion.

SOUTHERN NORTH SEA COMMITTEE

1945.

By

R. S. Wimpenny.

As the final stages of the last war extended well into 1945, little of the Committee's programme could be resumed, and such work as there is to report is chiefly concerned with ichthyometrics and statistics.

Belgium.

Weights, lengths, age determinations and the relevant statistics on landings and boats have been obtained in respect of the autumn fishery for **spent herring** of the Belgian coast. A report on the subject is being published in the *Annales Biologiques*, Vol. 2.

Denmark.

Investigations on the stock of **young plaice** (0-group to V-group) were carried out in the Danish Waddensea area as in previous years. The young-fish trawl was used in three periods, viz., about July 1st, September 1st and November 1st. A total of 54 stations were made both in the northern and southern part of the area. Stomach content was studied in about 750 specimens. A marking experiment was carried out in the Horns Reef area on October 31st; 200 specimens were liberated. Market measurements were carried out in Esbjerg about July

1st, September 1st and November 1st. About 22,000 plaice were measured and 5,700 otolith samples for age determination secured; these measurements and otolith samples were collected from all areas in the North Sea in which Danish seine cutters were fishing during 1945.

England.

At Grimsby market, **white fish** measurements were taken throughout the year, but at Lowestoft they were only started in July, whilst at North Shields the work was carried out from February to April. **Plaice** measurements were also made at Rye each quarter. The numbers of the species concerned are as follows:

Plaice	111,019
Sole	4,885
Cod	4,794
Haddock	6,222
Whiting	1,383
Gurnards	932
Total White Fish...	129,235

For the plaice, 943 measured and weighed specimens taken during each month of the year in Rye Bay had their otoliths removed for examination. 58 similar samples were taken in December at Grimsby and 1,233 from August to December at Lowestoft. The Rye Bay observations are being dealt with in *Annales Biologiques*, Vol. 2. Certain statistical observations on the changes of the stocks of fish during the war were carried out on the coast of Northumberland and it is hoped that these results will be published later.

Following the enforced curtailment of all **herring** investigations in the Southern North Sea on the outbreak of war, it was possible to re-start scientific work on a very much reduced scale during the autumn fishery of 1945. The work was confined to measuring herrings on the market, and making a series of age determinations in the laboratory. Altogether 7,800 herrings were measured, and 1,100 fish examined for age and sex in the laboratory. A short report on the constitution of the East Anglian shoals has been presented to the Southern North Sea Committee.

France.

The **hydrological observations** formerly carried out on the Dieppe-Newhaven line were re-started during the year in collaboration with the Fisheries Laboratory of the British Ministry of Agriculture & Fisheries. Some hydrological observations have also been carried out in connection with the herring fishery of the southern part of the North Sea and eastern part of the Channel.

The hydrological lines Dunkirk-Dover and Boulogne-Folkestone are shortly to be resumed, and it is hoped that temperature, salinity, and plankton samples will be taken as soon as possible from the lightship "Sandettie" moored on the western extremity of the Flanders Ridge.

The **herring** shoals of the southern North Sea and the eastern part of the Channel have been studied at the Boulogne laboratory in accordance with the pre-war programme. About 2,000 specimens have been measured and the age, sexual maturity, and vertebral formula of over 500 individuals has been determined. Taken in conjunction with the work of the Ostend marine laboratory, the results show a predominance of three-year (1942 class) and seven-year (1938 class) herrings.

Holland.

Plaice measurements have been carried out at Ijmuiden market. Otoliths of plaice have been collected and investigated with the object of back calculating the growth of the plaice in our coastal waters during the years of war. It has not been possible to get sufficient data during the war, and the scarce material that has been collected was lost by the bombing of the Hague. It will, however, be of great value to have a thorough knowledge of the growth of the plaice in our coastal waters, as it may be expected that in the future, trawling on the coastal grounds will be much less, in consequence of the London Convention on the size limits of the fishes. A greater density of the plaice population may then be expected. Investigations on the food of the plaice have been carried out. Material has been collected for studying the growth of the **sole** in the southern North Sea.

Poland.

No research work has been carried out in 1945.

Scotland.

As a result of the dispersal of the staff on war duties, it was impossible to carry out any fisheries investigations during the war years. The "Explorer" is nearly ready for sea, but lack of staff must necessarily limit the work which can be undertaken in the current year.

Experiments to test the value of "Asdic" in locating herring shoals were undertaken in collaboration with the Ministry of Agriculture & Fisheries. Further trials are to be undertaken and will be reported in due course.

TRANSITION AREA COMMITTEE

1945.

By

Erik M. Poulsen.

Denmark.

(Aage J. C. Jensen and Erik M. Poulsen).

Biology.

Eggs and Larvae. In the Limfjord fishing experiments with the ring-trawl and Hensen net were carried out in January and March.

Plaice. The density of the 0-Gr. plaice was investigated along the coasts of the southern Kattegat, the Belt Sea, the Sound and the western Baltic by means of the Johansen young plaice trawl in July and August.

Analyses of plaice regarding age and race, and markings were carried out in connection with transplantations of 52,500 kg. young plaice from the western to the central part of the Limfjord. Market measurements and age analyses of plaice were made in several fishing ports.

Other Flatfishes. Samples of flounders were examined as to age and race and the density of the 0-Gr. was investigated during the coastal fishery for the young plaice.

Herring. Samples of herrings from various waters were analysed as to racial characters, age, and rate of growth.

Sprat. Samples from various waters were examined regarding racial characters.

Samples of **"waste fish"** were investigated.

Experiments with small-meshed trawls were carried out in the Limfjord and the Isefjord.

Predictions of the yield of the mackerel and silver eel fisheries have been given.

Valuations of the bottom were made by the Petersen bottom sampler in the Limfjord and by the van Veen bottom sampler in the Isefjord.

Hydrography.

Observations of temperature and salinity were made during the experimental fishery.

Norway. (A. Dannevig).

Biology.

Eggs and Larvae. A pelagic fishery for eggs and larvae of fishes was carried out to a small extent in June and December.

The 0-Gr. of various **cod** fishes were investigated by means of hauls with purse seine in the fjords, especially the Oslo Fjord. Also older cod fishes were analysed.

Observations regarding **herring** and **mackerel** were made.

Experimental rearing of young **herring** and **oyster** were carried out.

Hydrography.

Observations were made at Flødevigen (daily) and (with longer intervals) at 7 stations in the Skagerak and 57 in the fjords.

Poland. (Z. Mulicki).

No research-work has been undertaken in 1945 due to the war conditions.

Sweden. (K. A. Andersson).

Biology.

Herring. Numerous samples from various parts of the Skagerak, the Kattegat and the south coast were collected and analysed as to "races", year-classes and rate of growth. Samples of the 0- and I-Gr. were included.

Sprat. Samples were analysed as to year-classes. The distribution of eggs and young fish was investigated in the fjords off Uddevalla. Also the influence of the hydrographical conditions upon the spawning and of the strong wind and heavy sea upon the development of the eggs were examined.

Haddock. Samples were collected and analysed. Statistics of the landings at the fishing harbours of Göteborg, also for previous years, were worked up (see Ann. Biol., Vol. II).

Plaice and **Flounder.** The occurrence of the 0- and I-Gr. off the southern west coast was investigated. Otoliths of plaice were collected and their age determined. The formation of the otoliths and their year-rings was studied.

Witch. Reports of the landings at the fishing harbours of Göteborg have been collected and treated together with material from previous years.

Hydrography.

See report of the Hydrographical Committee.

BALTIC AREA COMMITTEE

1945.

By

K. A. Andersson.

Reports of work carried out during the year 1945 have been received from Denmark, Finland, Poland and Sweden.

Denmark.

Biology. (Aage J. C. Jensen).

Quantitative fishing experiments with the Johansen young-plaice trawl were carried out from the M/B "Havkatten" at the coasts of Møen and Zealand from Aug. 28th to Aug. 29th, 1945. Quantitative hauls with the hand shove-net were carried out at the coasts of Bornholm from Aug. 19th to Aug. 28th for determination of the number of the 0-group (and I-group) of plaice, flounder and turbot.

Samples of **herring** from Bornholm have been analysed for race, age etc.

Hydrographical observations and collection of **plankton** samples have been carried out at Bornholm more or less regularly with assistance from fishermen during May to September. Determinations of the fat content of plankton were made.

Finland.

Biology. (T. H. Järvi).

Investigations on **herring** have been started and statistics of **seal** catches have been collected.

Hydrography. (E. Palmén).

(See the report of the Hydrographical Committee.)

Poland.

The scientific activity of the Marine Station at Gdynia was interrupted by the German invasion. The Polish marine investigations could be recommenced in a very limited manner only in September 1945 when the laboratory building was ready for use after the necessary reparations had been made.

Fisheries Investigations. (W. Cieglewicz).

Sprat. The shoals of sprat in the winter season of 1945—46 did not appear in the Gulf of Dantzig. Only very small shoals were observed in April and May 1946 along the Polish coasts. In order to investigate the causes of the diminution of the sprat stock observed since 1937 investigations were made concerning the distributions of eggs and larvae of sprat.

Herring. Investigations of race and age composition were made in respect of herring of the autumn and spring spawners.

Cod. The yield of the Polish cod fishery in 1945—46 has increased greatly in comparison with the pre-war yield. The mean quantity of cod fished by a single cutter during 1935 was about 2.5 tons, and in 1945—46 about 160 tons. Investigations were made of the stock in respect of maturity and age-groups.

Flatfish. The composition of the stock of flounders and particulars concerning their sexual maturity were studied.

Plankton. (W. Mańkowski).

Zoo- and phytoplankton investigations have recommenced in the Gulf of Dantzig.

Hydrography. (W. Bogucki).

In 1945—46 the State Meteorological Institute at Gdynia made regular daily observations of the surface temperature and salinity at 2 coastal stations (Gdynia and Łeba).

Sweden.

The M/S "Eystrasalt" could be kept in commission only during the autumn and the S/S "Skagerak" made a cruise to the southern Baltic in September.

Biology. (K. A. Andersson).

Cod. The stock of cod was studied and many fishing experiments with trawl and lines were made in different depths.

Whiting. The occurrence of whiting in the southern Baltic was investigated.

Plaice, Flounder, Turbot. In order to catch the 0- and I-group of these species fishing experiments with the Johansen young-plaice trawl have been carried out in shallow water at the coast of Scania and Blekinge during September. The aim of these experiments is to ascertain at an early stage of development the relative strength of the year-classes.

Herring. Fishing experiments with fine-meshed trawl and fine-meshed drift-nets were made in order to ascertain whether a new young year-class would appear. Samples were analysed as to age and length. The occurrence of herring spawn on the autumn spawning places in the southern Baltic was studied. On algae such spawn was abundant and the stomachs of cod were often filled with herring eggs.

Plankton.

Samples of plankton were collected with the Hensen net in the southern Baltic.

Hydrography.

In connection with the biological investigations observations of temperature and salinity have been taken.

Reports of other Committees.

HYDROGRAPHICAL COMMITTEE

1945.

By

Prof. Martin Knudsen.

Denmark. (Helge Thomsen).

North-Western Area.

Observations of temperature and salinity were carried out at six stations off East Greenland and north of Iceland from the inspection vessel "Godthaab".

Regular surface observations of temperature and salinity were resumed on the line Copenhagen-Greenland on July 1st and on the line Copenhagen-Iceland on November 13th.

At Myggenæs (Faeroes) daily measurements of the surface temperature were carried out throughout the year.

Southern North Sea.

Daily observations of temperature, salinity (by hydrometer) and surface current were carried out from the lightvessel "Vyl" from December 2nd.

Transition Area.

From the Danish lightvessels the usual hydrographic observations were carried out during the following periods:

Skagens Rev: from 4-IX
Læsø Trindel: until 11-IV and from 23-VIII
Læsø Rende: until 6-I and from 1-IX
Aalborg Bugt: from 5-IX
Anholt Knob: until 22-IV and from 29-VIII
Kattegat SW.: from 6-IX
Lappegrund: until 29-I and from 22-VI
Drogden: from 1-VI
Gedser Rev: from 12-IX
Halskov Rev: until 16-IV and from 3-VII.

At the ordinary coastal stations daily observations of temperature and salinity were carried out throughout the year.

Baltic Area.

At Christiansø near Bornholm daily observations of temperature and salinity were carried out as usual.

Eire. (G. P. Farran).

In the absence of a research vessel we have been unable to carry out any hydrographic observations in 1945 other than daily surface temperature records from Coningbeg Lightship.

England. (J. R. Lumby).

Fisheries Laboratory Lowestoft. No hydrographical work was undertaken in 1945.

Finland. (E. Palmén).

In 1945, the hydrographic-chemical work of the Finnish Institute for the Exploration of the Sea has been continued as far as conditions after the war permitted. The work has been especially confined to the coastal waters, as larger hydrographical expeditions could not be carried out. Hydrographical material from 21 fixed stations, 7 lightships, 13 tidal gauge stations and 12 tidal pole stations has been collected at the same time as before. This material has not yet been published.

Under the leadership of Professor Kurt Buch a special investigation of the nutritive salts and the plankton was carried out into the waters of SW. Finland. During four small cruises in these waters regular water samples were taken for the determination of t°, S $^0/_{00}$, O_2, pH, P, Si, alkalinity and plankton. The work will be continued. Further on Professor Buch has finished an investigation on Cu and Zn in the sea water; a paper on the results has been published.

During the year Dr. I. Hela has continued his investigations on the variations of the water level in the Baltic and the corresponding horizontal water transport through the Danish waters. Dr. Eugenie Lisitzin has finished an investigation of the connection between variations in water level and currents in the Gulf of Bothnia, and Dr. H. Simojoki has investigated the vertical and horizontal flow of heat in the northern Baltic in the vicinity of the lighthouse Bogskär.

France. (H. Dyèvre).

Les missions du Service Hydrographique de la Marine Française n'ont pas encore repris leur activité, et en conséquence il n'a été exécuté en 1945 aucun travail de levé hydrographique.

La publication des *Annales Hydrographiques* qui avait été interrompue après le volume de 1937 vient d'être reprise et deux nouveaux tomes sont actuellement en cours d'impression; dans le second figurera notamment une étude originale sur la propagation des ondes acoustiques sous-marines.

Holland. (H. Keyser).

No hydrographic work has been carried out during 1945.

Iceland. (H. Einarsson).

No hydrographic work, apart from some scattered temperature measurements, has been made in Icelandic waters in 1945.

Norway. (J. Eggvin).

1. The Cruises.

During 1945 eight cruises were made by the Marine Research Institute of the Fisheries Directorate in Bergen of which five were undertaken after May 8th. The cruises were made in Norwegian coastal waters and in the fjords with the Directorate's own boat "Johan Hjort" and three chartered vessels.

From the 157 stations visited, 2849 samples were collected and the Cl, O_2, pH and P_2O_5 contents were analysed.

During the first seven months of 1946, five cruises were undertaken by the "Johan Hjort" and four cruises by three chartered vessels and the two naval units "Buttercup" and "Englantine". The two latter were placed at the disposal of the Fisheries Directorate for Asdic research after cod and herring shoals, and also to study the penetration of Asdic-impulse through water layers of various densities. Seven of the cruises were carried out in coastal waters and in some of the fjords along the coast of Norway, while the eighth cruise in May—June relates to the eastern part of the North Sea off south-western Norway, and the Skagerak between the Norwegian coast and the coast of Sweden and Skagen in Denmark. The last cruise in June—July 1946 was undertaken off the coast of Finmark and in the Svalbard waters up to 80° N. Latitude.

Observations were made at 323 stations with a total of 6212 water samples. Of these 3282 were analysed on board for O_2, pH, P_2O_5 and NO_3-N contents, while most of the Cl samples are analysed on the termination of each cruise.

2. The Fixed Oceanographical Stations.

Observations at the fixed oceanographical stations along the Norwegian coast were carried out in accordance with the programme and two new stations were started, one west of Træna (66°38,3′ N. Lat., 12°04,6′ E. Long.) and the other west of Ona light at Möre (62°54,0′ N. Lat., 6°30,5′ E. Long.).

The deepest observations made at the two new stations were 225 and 200 m., respectively. Apart from temperature readings and the collections of Cl samples at the standard depths from 1 m. to the bottom, plankton samples were collected at depths of 1, 10, 25, 50, and 75 m. These last-mentioned samples are now being worked up at the Botanical Laboratory of the Oslo University under the leadership of Dr. T. Braarud, while the rest of the material is being worked up by the Marine Research Institute of the Fisheries Directorate.

Eight fixed oceanographical stations are now in action along the coast of Norway, observations being made once a week in the time from December to April and once every second week during the rest of the year.

3. The Sea-Thermograph Service.

Observations by the self-registering thermographs on board liners have been continued between Oslo and Tromsö, and from April 1946 also between Tromsö and Kirkenes, so that we are now in possession of an unbroken temperature registration for the surface layer along the entire coast of Norway.

Across the North Sea, between Bergen and Rotterdam and between Bergen and Newcastle the thermograph service was resumed in December 1945 and June 1946, respectively, after having been suspended since September 1939.

Poland. (M. Bogucki).

In 1945—46 the State Meteorological Institute at Gdynia made regular daily observations of the surface temperature and salinity at 2 coastal stations: Gdynia and Łeba.

Scotland. (John B. Tait).

No hydrographic work was carried out by Scotland during 1945.

Sweden. (Hans Pettersson).

Salinity and temperature. Hydrographic observations have been carried out from Bornö Station

(daily soundings to 33 m.), from Swedish lightships as they have regained their positions after the war, and from the "Skagerak" since she took up her scientific work after release from the Swedish Navy. A comprehensive hydrographic study of the salinity, temperature and other elements of hygienic importance has been carried out in the water system outside Stockholm in collaboration with "Stockholms Stads Gatukontor", the results being in part published by that institute. The results from these investigations have led to practical proposals for the amelioration of the water exchange through Oxdjupet at Vaxholm.

Sediment studies by means of the new Swedish coring-technique have been continued within Swedish fjords and have also been extended to greater depths in the Skagerak. Investigations by means of pollen-analysis as well as by chemical and mechanical analysis are in progress.

Measurements of the transparency of sea water have been facilitated through the construction by Dr. N. G. JOHNSON of a new standard transparency-meter which also allows of measuring submarine daylight.

The conversion of submarine light measurements into energy units worked out by Drs KULLENBERG and JOHNSON according to previous reports has been published. Their method has been used with excellent results for practical biological investigations (see below).

Penetration of submarine daylight into the sea with special regard to its antirachitic components has been measured at Bornö Station by a method specially contrived for this purpose, the results proving that photo-chemical processes in which the antirachitic component plays a rôle must be enacted quite close to the sea surface.

Vitamin D in the sea. Continued investigations of the Vitamin D content in marine organisms have given negative results as regards Copepods (2 kg. of raw material used). Also with brown algae from the shore the results were mainly negative. Only with *Fucus vesiculosus* traces of the vitamin were found.

Ultraviolet light and photo-synthesis. With macroscopic algae (brown, green and red) positive results showing perceptible assimilation were found in the region of longer wave-lengths (366 mμ mercury line) whereas with the antirachitic region no effect was found.

Assimilation by algae in submarine daylight. At Bornö Station Dr. T. LEVRING has studied the photo-synthetic effects from different spectral regions of submarine daylight on green, brown and red algae. The relative importance of the different algae colours has been clearly demonstrated by these measurements. Further the relationship between the assimilation occurring in different depths and the light energy present, determined according to the above-mentioned method, has been measured. The result from this comprehensive study will be published shortly.

PLANKTON COMMITTEE

1945.

By

Prof. H. H. Gran.

Denmark. (Poul Jespersen).

1. Investigations on the food of the herring in the waters round Bornholm, which have been carried out through several years, have been continued. Herring stomachs have been collected and preserved as regularly as possible during the whole year. The contents of the stomachs have been analysed in order to get an impression of the changes in the quantity and the composition of herring food in these waters in the different seasons and from year to year. It has been shown that there are considerable variations in the quantity from year to year but that the composition of the food is following certain set lines during the various seasons of the year. It is intended, as far as possible, to continue these investigations during several years in the future.

2. During the war a hydrographical-biological investigation of the Isefjord in the northern part of Zealand has been carried out. The collected material of zoo- and phytoplankton has been examined and a report is under preparation.

3. In the coastal waters of the Sound weekly collections of phytoplankton have been undertaken.

4. Phytoplankton from the coast waters off Esbjerg, Fanø and the Ho Bay ("Vadehavet") has been investigated and a report is under preparation.

5. An examination of the plankton in Præstø Bay in the eastern part of Zealand has been finished and a report is ready for printing.

6. Some introductory investigations on the diatoms as food for fish larvae and crustaceans have been undertaken.

7. The examination of the size variations and occurrence of peridineans in the waters round the Faroes and Iceland has been continued.

8. The working up of the material on deep-sea copepods from North Atlantic waters has been continued.

England. (R. S. Wimpenny).

Owing to the fact that the Fisheries Laboratory at Lowestoft did not re-open until August, and as no research ships were available throughout the year, no plankton observations were carried out at sea, nor was the staff available to work up any of the unpublished data of the years before the war.

Finland. (T. H. Järvi).

An investigation on the plankton of the Pojoviken (a fjord in the western part of the Finnish Gulf) in the years 1936 and 1937 has been published by Dr. Erkki Halme (Planktologische Untersuchungen in der Pojo Bucht und angrenzenden Gewässern. 1. Milieu und Gesamtplankton. Ann. Zool. Soc. Vanamo, Vol. 10, No. 2).

France. (F. Bernard).

Les conditions où s'est trouvée la France durant les hostilités ont ralenti les recherches marines. A Alger en particulier, M. Bernard, professeur, a été mobilisé jusqu'en Juillet 1945, ainsi que son assistent et un aide. De plus, le laboratoire maritime a été occupé par l'Amirauté française, et n'est rendu à son usage scientifique que depuis Novembre dernier.

Malgré ces difficultés, nous avons pu continuer partiellement l'étude du plancton, à faible distance des côtes (quelques milles), et par bouteilles à cause de l'usure des filets fins:

1°. Pour les facteurs de fertilité, le microplancton a été dosé par litre d'eau, grâce à la methode de sédimentation et au moyen d'un microscope in-

versé. Le manque d'acide sulfurique très pur a empêché le dosage des nitrates, mais les variations quantitatives des organismes ont été comparées à celles des phosphates, du vent et de la pluie au large d'Alger. Les résultats récents vont faire l'objet d'une note au *Journal du Conseil*. Ils montrent une grande différence entre le cycle local et les faits déjà établis à Monaco et Banyuls.

2°. Comme à Monaco, les Flagellés calcaires se révèlent un élément essentiel dans le volume total du plancton microscopique, principalement grâce à trois espéces: *Coccolithus fragilis*, *Corisphaera fagei* et *Corisphaera perennis n. sp.* Leurs variations saisonnières et profondes feront aussi le sujet d'un travail pour le Conseil, et ont déja donné lieu aux publications suivantes:

Bernard, F.: Biologie des Coccolithus (C. R. Soc. de Biologie d'Alger, 1945).

Schlauder, J.: Recherches sur les Flagellés calcaires de la baie d'Alger (Edition Astra, Paris 1945, 40 pp., 14 pl., 15 espèces nouvelles).

Holland. (B. Havinga).

No investigations have been carried out for the Plankton Committee.

Norway.

The Botanical Laboratory of the University, Oslo.

In collaboration with Dr. Jens Eggvin water samples for quantitative phytoplankton studies have been collected at the permanent oceanographic stations along the Norwegian coast. The samples are from the same depths as the hydrographic samples and were mostly taken at intervals of two weeks. The material, which is going to be worked up by Dr. Trygve Braarud, is hoped to give information on seasonal changes in the offshore phytoplankton, especially during summer and autumn.

During July, 1946, the survey of the inner Oslo Fjord with special reference to pollution is again going to be continued, and as before, in collaboration with the Biological Laboratory.

Poland. (W. Mańkowski).

Zoo- and phytoplankton investigations have recommenced in the Gulf of Dantzig.

Sweden. (Hans Höglund).

The Plankton work has been limited to investigations into the occurrence, in the so-called Uddevalla fjords, of sprat eggs and larvae.

SALMON AND TROUT COMMITTEE

1945.

By

KNUT DAHL.

Denmark. (ERIK M. POULSEN).

No research work as to salmon and sea trout has been carried out in 1945.

Eire. (A. WENT).

1. Biological Investigations.

During the year investigations into the age and growth of salmon of the Rivers Liffey, Shannon and the Kerry Blackwater were carried on and a report on the Liffey salmon was accepted for publication by the Royal Irish Academy. Material relating to salmon was collected from twenty other Irish rivers for the purpose of determining the proportion of previously spawned fish therein.

2. Artificial Propagation of Salmon and Trout.

Hatchery operations were carried out at a number of centres during the year, but owing to adverse weather conditions the yields were small.

3. The Catch of Salmon.

Returns of the catches of salmon were demanded from every holder of a licence to fish for salmon in 1945 and these returns, now in course of compilation, will not be available for some months. The export returns (published monthly by the Department of Industry and Commerce) give details of the weight of salmon exported from this country and, in normal years, may be regarded as a reasonable indication of the yield from the salmon fisheries. In 1945, however, there is some indication that a much larger proportion of the total catch was consumed at home than usual. The exports in 1945 amounted to 262,950 kg. which is about 25 % of the pre-war average. Owing to the increased home consumption this figure probably over emphasises the scarcity of salmon in Ireland in 1945.

Other available information as to the catch of salmon in Eire in 1945 confirms that the yields were very poor throughout most of the country. Grilse or peal were very scarce in most rivers and the large spring fish were virtually absent. The other age-groups were also smaller than normal. The drift-net fishing off the north and north-west coasts gave poor yields, despite fairly satisfactory weather conditions. This form of fishing depends almost entirely on the grilse or peal.

4. Papers published or in the Press.

W. E. FROST, 1945. "River Liffey Survey VI." Proc. Roy. Irish Acad. 50, B. 10.

ARTHUR E. J. WENT, 1945. "The distribution of Irish Char." Proc. Roy. Irish Acad. 50, B. 8.

— 1945. "Irish previously spawned salmon." Sci. Proc. Roy. Dublin Soc. XXIV (N. S.) 1.

— 1945. "Salmon of the River Shannon." The Field, CLXXXV, No. 4817.

— 1946. "River Liffey Survey VII. Salmon of the River Liffey." Proc. Roy. Irish Acad. 50, B. 2[1]).

England and Wales. (F. T. K. PENTELOW).

The Ministry of Agriculture and Fisheries, Fisheries Department, reports that in 1945 no work in fulfilment of the programme for the Salmon and Trout Committee has been done.

Finland. (T. H. JÄRVI).

The yield of the salmon fishery in 1945 was very good. Material for scale analysis of salmon was collected in the Oulu river only.

Salmon fry were liberated (1945) 209,700 in the Oulu river. One-summer-old parr 6,500 also in the Oulu river.

France. (R. VIBERT).

The Inspector of Water and Forests, 3rd region of Fish culture, reports that conditions during and after the war have been unfavourable to research work and that certain preliminary results which have been achieved will be presented and mentioned during the Stockholm meeting.

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[1]) Copies of this paper will be circulated to members of the Committee in due course.

Holland. (B. Havinga).

No investigations have been carried out for the Salmon and Trout Committee in 1945.

Iceland. (Árni Friðriksson).

Owing to the unsettled state of things after the war no research work has been done on salmon and trout in Icelandic waters in 1945.

Norway. (K. Dahl).

The statistical data for the salmon and sea trout fisheries 1941—44 have lately been published by the former Inspector of Fisheries, Mr. B. Aagaard.

The yield of salmon and sea trout fisheries in Norway was reported to be:

	In the sea	In the rivers	Total
1941.....	746,328 kg.	121,526 kg.	867,854 kg.
1942.....	749,867 -	126,865 -	876,738 -
1943.....	701,679 -	136,417 -	838,096 -
1944.....	719,275 -	144,276 -	863,551 -

Research work has owing to reorganisation of the staff been limited only to the preparation of reports on earlier work.

Since the last meeting has been published:

Knut Dahl: Mine or Nets? An experiment on the salmon fishing of the Orkla.

Poland. (M. Bogucki and St. Żarnecki).

Material for the study of salmon stock in the Gulf of Dantzig was collected. During the war-time artificial spawning was continued.

Protection of Salmonoid Fishes.

In 1943 a fish-pass was constructed in the 30 m. high barrage in the upper part of the river Dunajec. The effects of this construction of the migration of fish are being investigated.

Scotland. (I. E. de Watteville).

The Scottish Home Department reports that owing to difficulties created by the war the Scottish research programme which comprises a number of points important to the study of the biology of salmon and sea trout, has had to be delayed and that practically no research work has been done during 1945. As soon as the finances of the research are settled, the intention is to return to the plan.

Sweden. (N. Rosén).

The examination of previously collected samples of salmon scales from the west coast has been finished and a report is in preparation.

Marking experiments with salmon used for artificial propagation have been carried out in the river Ätran, Kattegat. Some of the marked specimens were shortly afterwards recaptured in the river.

In the eastern rivers both smolts and spent salmon have been marked and at the east coast some young salmon.

As to the working programme agreed upon during the last session in Copenhagen, the chairman reports that a small factory for making hydrostatic marks has been established in Bergen by Mr. Einar Lea. Samples have been sent to the various participating and invited countries. From the majority of these promises of cooperation in the working scheme have been received, in some cases conditionally and subject to discussion during the meeting in Stockholm.